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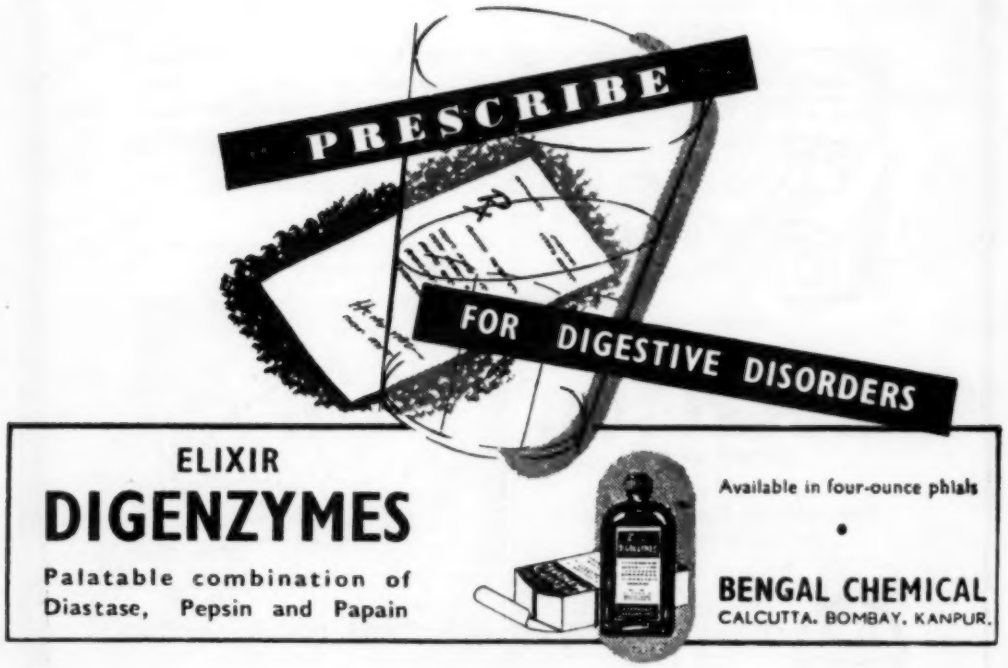

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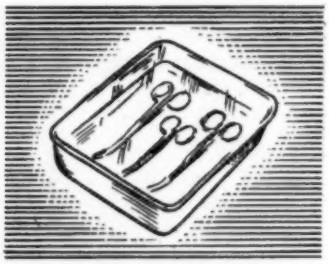

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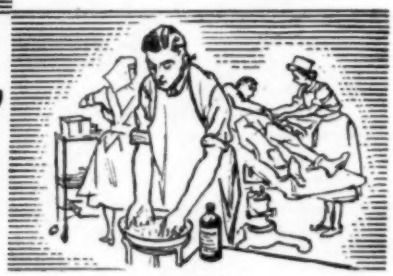

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TABLE OF CONTENTS

ORIGINAL ARTICLES : Page

1. Weil Felix Titres in Normal Subjects and Non-Typhus Fever Cases—S. D. Khanna and Manmohan Singh 123
2. Cobalt with Iron in the Treatment of Iron Deficiency Anaemias—K. U. Jhatakia ... 126
3. Pseudo-Anaphylaxis Due to Benzene —Sharad Kumar 129

PRACTITIONERS' SERIES :

Experiences with Crotonyl-N-Ethyl-O-Toluedine Cream as an Aid to Local Treatment of Pruritic Skin Diseases—T. D. Majumdar, B. Sen Gupta, H. N. Das Gupta and B. Chakravarty 132

SPECIAL ARTICLE :

Recent Trends in the Management of Pulmonary Tuberculosis — Timothy Takaro, Archibald G. Fletcher and M. Paul 134

PUBLIC HEALTH :

Dietary Habits in Uttar Pradesh in Relation to Income—K. K. Govil, D. P. Bhatnager and K. C. Pant 138

CASE NOTES :

1. LeuKaemia Associated with Diabetes —A. K. Nandi 141

CASE NOTES (*Contd.*) : Page

2. Subdiaphragmatic Abscess Secondary to Hydatid Cyst of the Liver—S. N. Chakravarti and A. K. Rastogi 142

EDITORIAL :

Significance of Antibody Titre of a Random Population 144

CURRENT MEDICAL LITERATURE 146

CURRENT TOPIC :

The Organisation of Public Health Service in the U S S R—I. Bogatyrev 148

NOTES AND NEWS 151

CORRESPONDENCE 152

REVIEWS 153

OBITUARY 154

SUPPLEMENT :

1. XV Maharashtra & Karnatak Provincial Medical Conference, Jalgaon (E. K.) ... 155
2. VII Madhya-Pradesh Provincial Medical Conference, Saugar 160
3. Branch Notes 162

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INDEX TO ADVERTISERS

	Page
Alembic Chemical Works Co. Ltd.	x
Allied Photographics Ltd.	vi
Amalgamated Chem. & Dyestuffs Co., Ltd.	xxiii
Bengal Chemical & Pharm. Works Ltd.	Front Cov.
British Drug Houses (I) Ltd.	xxix
Bronkol Ltd.	xxxi
Burroughs Wellcome & Co. (I) Ltd.	ix
Capco Ltd.	xiv
Carr & Co. Ltd.	xxvi
Ciba Pharma Ltd.	xv
C. L. Bencard Ltd.	xvii
Cipla Ltd.	xxx
Corn Products Co. (I) Ltd.	vii
Crookes Laboratories Ltd.	xi
Dumex Ltd. (East Asiatic Co.)	xxi
Eastern Drug Co. Ltd.	ii
East India Pharmaceutical Works Ltd.	xx
Fairdeal Corporation Ltd.	xxviii
Franco-Indian United Laboratories	xiii, xix
Geoffrey Manners & Co. Ltd.	xvi
Gluconate Ltd.	xxix
G. D. Searle & Co. Ltd.	xxvii
Hindusthan Antibiotics Ltd.	vii, xxiv
Himalaya Drug Co. (Dey's Medical Stores Ltd.)	xxiii
Horlicks Ltd.	xviii
Imperial Chemical Industries (I) Ltd.	2nd Cov.
John Wyeth & Brother Ltd.	xxxii
Kesari Kuteeram Ltd.	xxxi
Khatau Valabhdas & Co.	iii
Lederle Laboratories (I) Ltd.	i
Marmite Ltd.	xxv
National Pharmaceuticals	iv
Navaratna Pharm. Laboratories	iv
Nestle's Products (I) Ltd.	viii
Oriental Pharmaceutical Industries Ltd.	xxix
Pfizer Eastern Corpotation (Ravison Pharmaceuticals Ltd.)	xxii
Pannalal Bros.	xxviii
Pasteur Laboratories Ltd.	xxviii
Raptakos, Brett & Co. Ltd.	xxv
Sanitex Chemical Industries Ltd.	xii
Smith Stanistreet & Co. Ltd.	xxvi
Standard Pharmaceutical Works Ltd.	vii
Stadmed Ltd.	xii
Unichem Laboratories	xxiv
Voltas Ltd.	v
Winthrop Products Ltd.	xxxi
W. T. Suren & Co. Ltd.	xviii

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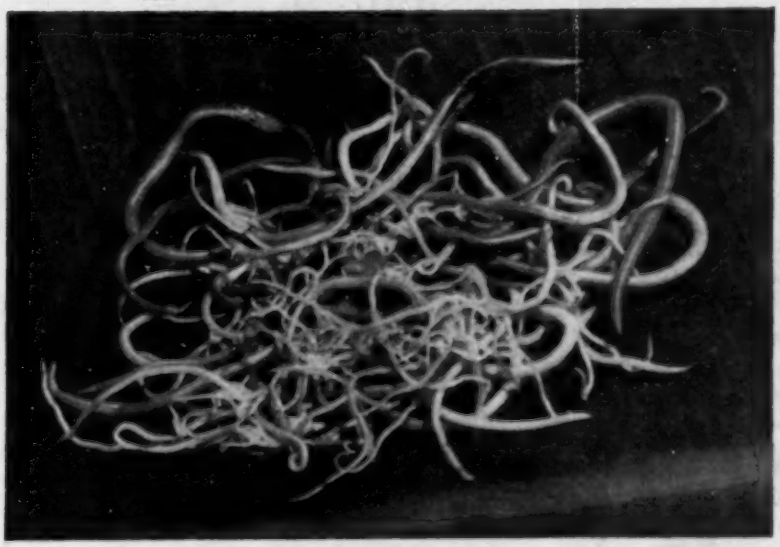

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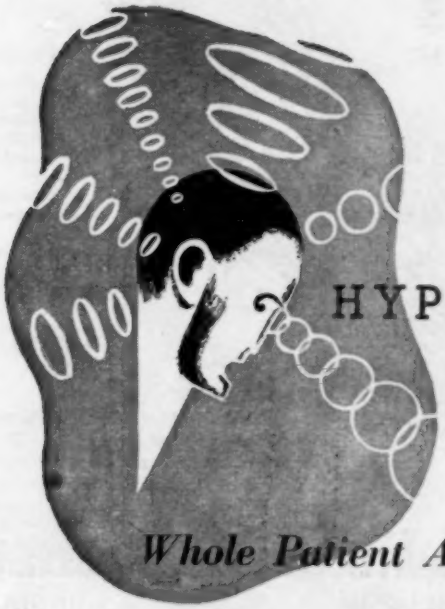

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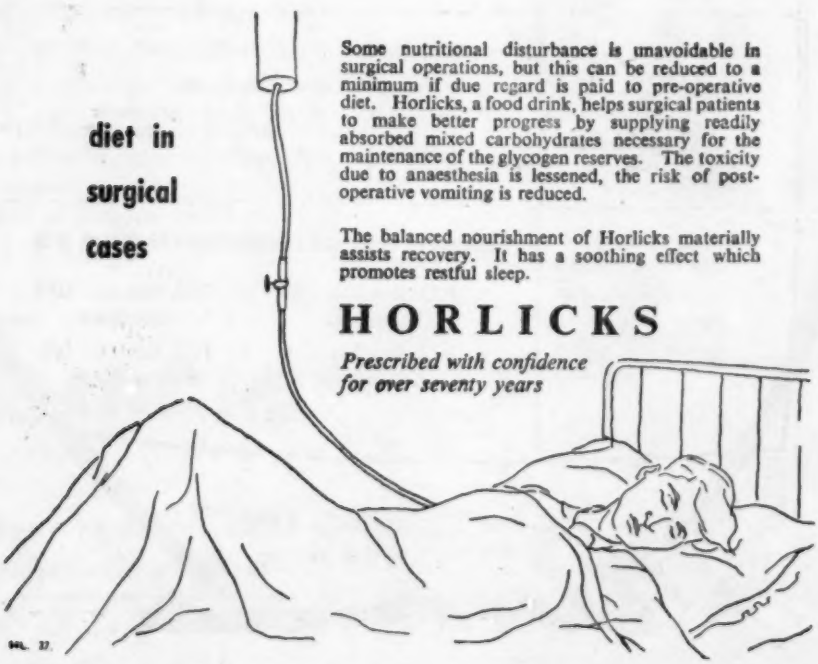

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Journal of the Indian Medical Association

Vol. 26, No. 4 CALCUTTA February 16, 1956

PUBLISHED TWICE A MONTH

ORIGINAL ARTICLES

WEIL-FELIX TITRES IN NORMAL SUBJECTS AND NON-TYPHUS FEVER CASES

S. D. KHANNA, M.D.

AND

MANMOHAN SINGH, M.B. (PB.), D.P.H. (CAMB.), D.T.M. & H. (CAMB.),

Department of Pathology and Bacteriology, Medical College, Amritsar.

Felix (1950) in a note submitted to the Expert Committee on Biological Standardization of the World Health Organization writes, "The Weil-Felix group of tests despite their limitations are firmly established as valuable aids to the diagnosis of fevers of typhus group and Weil-Felix test remains the only one available for routine purposes and the rickettsial antigens supplant rather than supplement the Proteus OX antigens". The demonstration of causal rickettsiae is a time-consuming procedure and requires the use of a complicated technique like yolk sac cultivation or inoculation of different laboratory animals and hence can only be carried out in a virus laboratory. The rickettsial agglutination and complement-fixation test have the advantage over Weil-Felix reaction of making it possible for arriving at a differential diagnosis of certain fevers of the typhus group which cannot be distinguished from each other by Weil-Felix reaction but they have some disadvantages, viz., in the majority of cases they become positive 5-6 weeks later than the Weil-Felix reaction and the complement-fixation test often remains positive for months or even years so that it is of much less value in retrospective diagnosis than the Weil-Felix reaction which usually becomes negative within a few weeks or months after the attack (Felix, 1950). Weil-Felix reaction, therefore, is the easily available test for the diagnosis of typhus group of fevers in a general pathology laboratory.

Weil-Felix titres in normal persons have hardly been worked out in this part of the country and the present investigation was undertaken to assess these as well as to ascertain if the agglutinins in blood of healthy persons increased after T.A.B. vaccine inoculation and if they rise due to anamnestic reaction in non-typhus fever cases as has been suggested by some workers.

Material

1. Two hundred 'normal' subjects giving no suggestive history of typhus infection were selected from the medical students and afebrile patients of both sexes admitted to different hospitals attached to the Medical College, Amritsar, for treatment of injuries and eye diseases. These cases comprised infants, children, adolescents, young adults, middle aged and elderly people.

2. Weil-Felix titres were determined in 50 healthy medical students with no suggestive past history of typhus infection and they were then inoculated with T.A.B. vaccine prepared by the Central Research Institute, Kasauli, in two doses, 0·5 c.c. and 1 c.c. in males and 0·4 c.c. and 0·8 c.c. in females. Weil-Felix reaction was repeated at intervals of one week, two weeks and one, two and three months after inoculation.

3. Weil-Felix reaction was carried out at 4-5 days' interval during illness and convalescence in 200 cases of common non-typhus fevers comprising

30 cases of enteric (25 of *Salmonella typhi* and 5 of *Salmonella paratyphi* A infection), 40 of malaria (30 of *Plasmodium vivax* and 10 of *Plasmodium falciparum* infection), 32 of lobar pneumonia, 50 of pulmonary tuberculosis and 48 of pyrexia of uncertain origin. The pyrexia of uncertain origin cases had fever of 5-12 days' duration and in these, laboratory investigations including blood culture for enteric were negative.

Method

For the determination of Weil-Felix titres of sera the macroscopic method of agglutination (drop method) was used and the reaction was carried out in round bottomed test-tubes $3'' \times \frac{3}{8}''$. The agglutination reaction of each serum was tested against alcohol-treated concentrated "O" suspensions of Proteus XK, X2 and X19 in final serum dilutions of 1 : 25, 1 : 50, 1 : 125 and 1 : 250. These agglutinable suspensions were obtained from the Armed Forces Medical College, Poona and were frequently tested for roughness. The tubes were incubated in a water bath at 52°C. for 4 hours, kept overnight at room temperature and the results were recorded the next morning with the aid of a hand lens. A reaction was taken as positive when there was a definite deposit with or without crenated margins spread over the bottom of the tube without even the slightest trace of a bead. All doubtful reactions, i.e., those showing a compact bead at the centre of the bottom of the tube in addition to a deposit spread over the bottom were regarded as negative.

Results

Normal persons—Sixty-two per cent of normal sera exhibited agglutinins for Proteus OXK, 67·5 per cent for Proteus OX2 and 35 per cent for Proteus OX19 in title 1 : 25 or over. The highest titre obtained was 1 : 125. The percentage of sera with their agglutinin titres have been shown in Table 1. The highest titre recorded of 1 : 125 was present only in 1 per cent normal sera with Proteus OXK and OX19 and in 5 per cent sera with Proteus OX2. Weil-Felix titres amongst different age groups and in the two sexes showed no significant difference.

Normal subjects inoculated with T.A.B. vaccine—Weil-Felix reaction carried out at intervals of one week, two weeks and one, two and three months after inoculation showed that the agglutinins remained absolutely unaffected.

Non-typhus fever cases—Fifty five point five per cent sera from 200 non-typhus fever cases showed agglutinins for Proteus OXK, 70 per cent for OX2 and 46 per cent for OX19 in titre 1 : 25 or over (Table 1). The highest titre obtained for any of the three organisms was 1 : 125. Tests repeated during the course of illness and convalescence showed no fluctuation of agglutinins.

Table 1—Showing Weil-Felix Titres in Normal Subjects and Non-typhus Fever Cases

Group	No. of cases	Percentage positive in titre 1 : 25 or over	Percentage of cases with agglutinin titre		
			1 : 25	1 : 50	1 : 125
Proteus OXK					
Normal subjects	200	62·0	38·5	22·5	1·0
Non-typhus fever cases ...	200	55·5	29·0	21·0	5·5
Proteus OX2					
Normal subjects	200	67·5	31·0	31·5	5·0
Non-typhus fever cases ...	200	70·0	35·0	31·5	3·5
Proteus OX19					
Normal subjects	200	35·0	25·5	8·5	1·0
Non-typhus fever cases ...	200	46·0	20·0	20·5	5·5

Discussion

WEIL-FELIX TITRES IN NORMAL SERA :

The results obtained in the present investigation have been compared with those of the other workers in India and abroad in Table 2. The findings regarding Proteus OXK agglutinins in the present investigation conform to those of Scales (1935), Pasricha, Bannerjee and Lal (1936), Lebron and Ostero (1942), Medical Research Council (1942) and Hicks (1946). The figures obtained by Soman (1947) are very low.

Proteus OX2—The results obtained in the investigation under report agree with those of Lebron and Ostero (1942), but are much higher as compared to those of Scales (1935), Pasricha, Bannerjee and Lal (1936), Medical Research Council (1942) and Soman (1947).

Proteus OX19—The figures obtained by Savoor, Castaneda and Zinsser (1935), Lebron and Ostero (1942), Medical Research Council (1942) and Liu, Chang and Wang (1948) agree with those in this series but the findings of Pasricha, Bannerjee and Lal (1936) and Soman (1947) are significantly higher and lower respectively.

It is apparent from the present findings that the Proteus OX2 agglutinins are more frequent here than at any other place in India or abroad. Is it just natural or due to more frequent occurrence of typhus in Amritsar area? When we attempt to co-relate the presence of agglutinins we are faced with many difficulties. No evidence of previous typhus infection was obtained from any of the subjects in this series. We can, however, accept the popular view that the frequency of agglutinins affords an indication of the frequency of a particular infection in a community. According to this view there exists then the possibility of some inapparent cases of typhus going undiagnosed in Amritsar area and this problem needs to be investigated further.

EFFECT OF T.A.B. VACCINE INOCULATION :

No change in titre was observed in sera of healthy medical students after T.A.B. vaccine inoculation. Zlocisti (1917-18) also did not observe any fluctuation in OX19 titre in typhus convalescents as the result of subsequent inoculation with typhoid vaccine. Dick (1946) has suggested that rise in the agglutinins for Proteus X strains observed by him in non-typhus diseases prevalent in the troops in the Middle East was possibly due to injections of T.A.B. vaccine and tetanus toxoid which had been received by his patients. Dick's suggestion regarding T.A.B. vaccine has not been substantiated by actual work on the problem in the present investigation.

NON-TYPHUS FEVER CASES :

Comparison of agglutinins in 200 non-typhus fever cases with 200 normal subjects (Table 1) shows that agglutinins for Proteus X strains in

TABLE 2—SHOWING COMPARATIVE FINDINGS OF VARIOUS WORKERS IN "NORMAL" AFEBRILE INDIVIDUALS

Author	Place	No. of cases	Percentage showing agglutinins at specified titre or over Proteus					
			OXK		OX2		OX19	
			1 :25	Highest titre	1 :25	Highest titre	1 :25	Highest titre
Savoor, Castaneda and Zinsser (1935)	U.S.A.	500	—	—	—	—	21·0	160
Scales (1935)	India	150	67·0	125	25·0	50	30·0	50
Pasricha, Bannerjee and Lal (1936)	Calcutta	178	75·0	—	11·7	50	60·1	—
Lebron and Ostero (1942) ...	U.S.A.	600	76·2 to 81·8	200	50·2 to 63·9	400	39·0 to 45·0	200
Medical Research Council (1942)	England	100	85·0	128	19·0	64	19·0	128
Hicks (1946)	Australia	398	80·0 to 95·0	40	—	—	—	—
Soman (1947)	Bombay	500	0·2	50	0·0	0	11·0	100
Liu, Chang and Wang (1948)	China	313	—	—	—	—	19·7	320
Present Investigation ...	Amritsar	200	62·0	125	67·5	125	35·0	125

Note :—1. Where the titres recorded by the worker are different, for the sake of clarity these have been included in the nearest figure e.g. if the titres recorded were 1 :20, 1 :40 and 1 :80 these have been included in 1 :25, 1 :50 and 1 :125 respectively.
2. Sign "—" denotes that no work has been done by the author.

these fever cases were just "normal" agglutinins as present in healthy subjects. None of the fever cases were observed to agglutinate Proteus X strains beyond 1 : 125 titres. These findings are in complete accord with those of Zlocisti (1917-18), Scales (1935), Felix (1944) and Soman (1947). But other workers like Dick (1946), Calder (1941) and Liu, Chang and Wang (1948) have observed non-specific rise of Weil-Felix titres in fevers like enteric, malaria, brucellosis and kala-azar.

Summary and Conclusions

1. Weil-Felix reaction has been carried out in 200 normal sera and 200 sera from common non-typhus fever cases using macroscopic tube method and 4 hours' incubation in a water bath at 52°C.

2. Sixty-two per cent normal sera agglutinated Proteus OXK, 67 per cent Proteus OX2 and 35 per cent Proteus OX19 in titre 1 : 25 or over. Highest titre recorded was 1 : 125.

3. Effect of T.A.B. vaccine inoculation on Weil-Felix titres has been studied in 50 healthy medical students. The titres after inoculation remained unaffected.

4. The findings in sera from non-typhus fever cases were similar to those in normal sera and no anamnestic rise of agglutinins was noted in them proving the specificity of Weil-Felix reaction in the diagnosis of typhus group of fevers.

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COBALT WITH IRON IN THE TREATMENT OF IRON DEFICIENCY ANAEMIAS

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Cobalt is one of the essential trace elements in animal nuitrition and has been used with iron salts for treatment of secondary anaemia in man. So far good amount of work has been done with intravenous iron alone and so the study on the effect of intravenous cobalt with iron was undertaken to find out the effect of this combination in comparison to iron alone. The experimental work with trace elements during the past years has produced various results which in addition to their significance for pharmaceutical knowledge have practical values. In various diseases of animals, diet poor in cobalt leads to the formation of a characteristic differential syndrome (i.e., wasting disease, coast sickness etc.). Outstanding amongst these is the hypochromic microcytic anaemia reversible with doses of cobalt. Continuous use of extremely small doses of cobalt in man and animal lead to an increase in erythrocytes and haemoglobin which finally results in polyglobulism.

Therapeutic use of cobalt was based on the results of detailed haematological analysis of the effect of cobalt on the blood and bone marrow of healthy subjects. Wolff (1951) found that administration of cobalt parenterally in doses of 3 to 15 mg. and oral doses of 20 to 50 mg. per day for 10 to 20 days produced a powerful erythropoietic effect. The rise in R.B.C. count and haemoglobin value occurred on from the third to fifth day and reached the maximum after about ten to fifteen days. After the administration of cobalt is stopped, values remain increased for a time and then slowly return to the starting level.

The bone marrow study reveals great activation by increase in the preliminary stages of erythrocytes. The study of serum iron revealed an increased utilisation of iron in the synthesis of haemoglobin and a mobilisation of the existing reserves of iron by the cobalt.

There is a considerable literature on the experimental use of cobalt in producing polycythaemia both in normal and anaemic animals. In treated animals the haemoglobin and R.B.C. both showed considerable increase over values for normal controls. Cartwright and Wintrobe (1949) studied the effect of cobalt on rats made anaemic by the

production of turpentine abscesses. They found that animals to which cobalt was given in addition to turpentine not only failed to develop anaemia but actually became polycythaemic The blood iron level of rats treated with turpentine and of those receiving turpentine and cobalt showed highly significant differences and it is concluded that cobalt favourably influences the utilisation of iron for haemoglobin synthesis. All the rats in Gulber's (quoted by Coles and Ursula, 1954) experiments were receiving iron at the time and increased absorption of iron was not demonstrated after cobalt treatment, thus suggesting that cobalt favours increased utilisation of available iron. This view is supported by the work of Kato and Iop (quoted by Coles and Ursula, 1954) on the influence of cobalt on iron storage. Those authors found that animals receiving large doses of iron over long periods stored iron in the spleen and to a lesser extent in the bone marrow. When cobalt was given together with iron, no iron was found in these organs, but the total iron content was raised 24-58 per cent above control total iron values. This bears out the suggestion that cobalt enables iron to be more completely utilised for haemopoiesis than when iron is given alone.

The regulation of the deficiency states of the individual substances necessary for blood formation and the use of haematopoietic stimulation are basic principles in the therapy of anaemia. The definite prerequisites for the latter include (1) an adequate supply of building materials and catalysts of haematopoiesis in places where blood is formed, (2) maintenance of the capacity of the bone marrow to respond to regeneration stimuli and finally (3) ratio between the strength of the anaemising noxa and the therapeutic agent in favour of the latter. These are the conditions under which an anti-anaemic effect can be expected from cobalt. The degree and rapidity of the haemoglobin increase in general were a function of the available iron material. Thus with normal or high serum iron, the formation of blood pigment usually rose rapidly and paralleled the increase in erythrocytes, while in the case of low serum iron, this soon stagnated and the haemoglobin curve formed plateaus and finally went downward.

Therapeutic reports of cobalt in the treatment of anaemia in man are few. Waltner (quoted by Coles and Ursula, 1954) first discussed its uses in the anaemia of childhood although it had already been tried in 1894 by Antal (quoted by Coles and Ursula, 1954) as an antidote to cyanide poisoning and cobalt arsenical preparation had been used as a general tonic. Waltner (quoted by Coles and Ursula, 1949), treated 21 children with secondary anaemia, with 14 favourable results.

The effect of cobalt chloride 20-60 mg. a day for 2-11 weeks on anaemia due to chronic osteomyelitis or soft tissue suppuration has been studied. Reticulocyte response occurred as early as the fourth day and was maintained throughout treatment. In all cases, a return to normal blood value was obtained. Shen and Homburger (quoted by Coles and Ursula, 1954) treated 16 patients with anaemia associated with advanced cancer with cobalt chloride, 60-240 mg. daily. Nine patients had reticulocyte response and 3 showed elevation of the blood count to normal levels. 2 failed to respond at all and 2 died before any rise could be expected and 2 were unable to tolerate the drug. The authors noted a high incidence of toxic reactions including nausea, vomiting, anorexia, muscle pain and angina.

With encouraging reports from literature, it was decided to give a trial to cobalt with iron combination in various anaemias. The author has used the same iron preparation alone in many cases and preliminary report was already published (Jhatakia, 1951). The present series has been treated with iron with cobalt so that the result can be compared with the previous series. The present series consists of 25 cases where intravenous iron with cobalt was used. The preparation used contained 100 mg. saccharated oxide of iron with 5 mg. of cobalt in 5 c.c. ampoules. Each case was thoroughly worked out and various necessary data and haematological investigations were carried out. The bone marrow was studied in each case and those cases which seemed to lack in iron were considered for the study.

All these cases were classified taking all three indices together. It has been known that macrocytic hyperchromic anaemia can either be fully saturated with iron or might be lacking in saturation and in the latter type, iron is indicated in the treatment. This may be entirely missed unless we take up all these indices together in classifying the cases of anaemia. Taking all the 3 indices together, 17 cases belonged to microcytic hypochromic hyposaturation type, 4 belonged to macrocytic hypochromic hyposaturation type while 4 belonged to normocytic hypochromic hyposaturation type. The probable aetiology in 1 case was tuberculosis, in 11 nutritional deficiency and in 9 cases hookworm disease, while the remaining 4 cases were haemorrhagic. The bone marrow in all cases was normoblastic. Thus in all cases, there was indication for iron, as there was hyposaturation. The drug was given on the first day in small doses of 2 c.c. and then was increased gradually to 10 c.c. per day if no reaction was

observed. The drug was diluted in 10 c.c. of glucose and was given intravenously very slowly. None of the cases had any severe side reactions except in one where the patient had severe back pain, giddiness and flushing and further administration of the drug had to be abandoned. Few cases had minor side reactions such as backache, giddiness, headache, nausea, vomiting, rise in temperature, palpitation, rigors and urticaria. These side reactions were similar to those which were observed when intravenous iron alone was given. It seems that addition of cobalt did not increase any side reactions.

The duration of treatment varied from 9 to 28 days and the total amount of drug given varied from 45 c.c. to 174 c.c. (each c.c. contained 20 mg. of iron and 1 mg. of cobalt). Table 1 gives the details of individual cases. The average haemoglobin rise per day of the therapy varied from 0·5 per cent to 5 per cent. It was 0·5 per cent to 1 per cent rise in haemoglobin per day in 3 cases, 1 to 2 per cent in 8 cases, from 2 to 3 per cent in 6 cases, 3 to 4 per cent in 3 cases, and 4 to 5 per cent in 5 cases. This when compared to the previous series, when intravenous iron alone was given, the daily rise was not more

TABLE 1—SHOWING DETAILS OF INDIVIDUAL CASES ON COMBINED IRON AND COBALT THERAPY

Initials	Sex/Age	Type of anaemia	Probable aetiology	R.B.C. count in million		Haemoglobin value in g.		Total amount of drug in c.c.	Reaction	Duration of treatment in days	Average rise of Hb. per day (per cent)	Average rise of Hb. per 100 mg. of iron and cobalt (per cent)
				At start	Final	At start	Final					
L.A.	M/35	Micro. hypo. hypo.	Hookworm disease	2·1	3·1	3	10	140	Nil	28	1·7	1·7
I.K.	M/22	Do.	Do.	2·6	3·8	3·5	10·5	135	Nil	27	1·8	1·8
S.I.	M/38	Do.	Nutritional	1·6	2·9	5	10	100	Backache & giddiness	20	1·5	1·5
M.A.	F/24	Normo. hypo. hypo.	Tuberculosis	2·1	2·8	4·5	6·5	165	Headache & giddiness	28	0·5	0·3
N.A.	F/23	Micro. hypo. hypo.	Nutritional	1·3	3·8	1·7	10·2	130	Headache, pain in loin	24	2·4	2·2
R.B.	M/18	Normo. hypo. hypo.	Do.	2·1	3·1	5	7·5	145	Nil	18	1·0	0·7
R.N.	M/40	Do.	Haemorrhagic	1·8	3·2	5	8·5	65	Discomfort in chest, giddiness, leg pains	12	2·0	1·8
A.A.	F/16	Do.	Nutritional	2·2	4·4	6	16	115	Nil	20	3·6	3·0
A.J.	M/45	Macro. normo. hypo.	Haemorrhagic	1·7	2·9	3	8·5	145	Nausea occasional	16	2·3	1·3
I.K.	M/25	Macro. normo. hypo.	Hookworm disease	0·9	2·7	2·6	7·0	174	Vomiting once	22	1·4	0·8
S.N.	F/17	Macro. normo. hypo.	Nutritional	3·2	3·8	8·4	9·8	45	Pain back, giddiness, flushing	10	1·0	1·1
H.K.	F/25	Do.	Do.	1·3	3·1	4·0	11·0	145	Occasional fever	20	2·25	1·5
F.S.	F/20	Normo. hypo. hypo.	Do.	2·9	3·6	7·0	9·5	70	Nil	16	1·1	1·2
S.N.	M/35	Micro. hypo. hypo.	Hookworm disease	1·6	3·9	3·4	11·4	92	Rigor on 1st day	12	4·4	3·15
M.D.	M/40	Do.	Haemorrhagic	1·7	4·0	4·0	12·8	87	Nil	12	5·0	3·29
J.B.	M/35	Do.	Nutritional	1·9	3·8	4·6	11·5	77	Palpitation once	11	4·2	2·82
M.A.	M/15	Do.	Hookworm disease	2·8	4·1	6·5	12·6	60	Nil	10	4·0	3·39
R.L.	M/20	Do.	Nutritional	1·7	3·2	4·5	9·0	82	Nausea, uneasiness 1st 2 days	11	2·6	1·6
A.K.	M/24	Do.	Hookworm disease	2·2	3·8	6·0	12·0	72	Giddiness, bodyache	10	4·0	2·6
G.A.	F/28	Do.	Haemorrhagic	2·6	4·1	7·5	13·0	57	Nil	9	4·2	3·3
G.M.	M/32	Do.	Hookworm disease	1·8	3·8	4·5	10·0	57	Chest pain	9	4·2	3·3
H.A.	F/26	Do.	Do.	2·1	3·9	5·4	10·0	67	Nil	12	2·5	2·3
A.G.	M/22	Do.	Nutritional	2·4	3·3	6·6	9·9	67	Urticaria, nervousness	12	1·8	1·5
K.S.	F/28	Do.	Nutritional	1·2	3·8	2·7	9·0	70	Nil	16	2·5	3
M.K.	M/22	Do.	Hookworm disease	2·2	4·4	4·5	10·0	80	Nil	18	2	2·25

than 3 per cent in any case. This showed that the duration of therapy can be shortened in suitable cases by this cobalt iron combination. A very accurate assessment can be done by judging the haemoglobin rise per 100 mg. of iron with 5 mg. of cobalt and compare this with previous series. The average rise of haemoglobin per 100 mg. of metallic iron with 5 mg. of cobalt varied from 0·3 per cent to 3·4 per cent. In 3 cases it was less than 1 per cent, in 10 cases it was between 1 to 2 per cent, in 6 cases it was between 2 to 3 per cent, while in 6 cases it was between 3 and 3·5 per cent. This when compared with the previous series treated with iron alone, shows definitely better results as the maximum haemoglobin rise per 100 mg. in that series was 3·2 per cent only in 1 case while the majority of cases had less than 3 per cent per 100 mg. of iron. Table 2 gives the corresponding figures.

TABLE 2—SHOWING COMPARATIVE RISE PER 100 MG. OF I.V. IRON WITH AND WITHOUT COBALT

Rise in Hb. per cent per 100 mg.	Percentage of cases treated with iron alone	Percentage of cases treated with cobalt and iron
0 to 1	7	12
1 to 2	62	40
2 to 3	25	24
3 to 4	6	24

(100% haemoglobin = 17 g.)

The average daily rise in haemoglobin per 100 mg. iron seen in the previous series was 1·6 per cent while with 5 mg. cobalt and 100 mg. iron, it was 2·05 per cent in this series. Thus it will be seen from Table 2 that the result with iron and cobalt is on the whole better than with iron alone. As the present series is small and worked at different periods, limitation of such comparison is admitted.

This work has been done mainly to compare the effect of cobalt with iron with that of iron alone in identically similar cases, and so other types of anaemias, neoplastic, haemolytic or due to infections where cobalt is supposed to be of value, have not been incorporated in the present series. It is contemplated to carry out the work in future in this type of cases to study the effect of cobalt.

CONCLUSIONS

This is a preliminary report on the use of intravenous cobalt with iron and the number of cases is rather small for definite conclusions. However, it can be said that the drug cobalt is safe for intravenous therapy and is without any untoward side-reactions. In this series, the cases treated were of iron deficiency anemias and both iron and cobalt were simultaneously administered to compare the effect of the combination to previously worked out series when only iron was given. The results are better with iron and cobalt combination.

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PSEUDO-ANAPHYLAXIS DUE TO BENZENE*

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The role of benzene in the production of leukopenia, thrombocytopenia and 'aplastic anaemia like' syndrome has been a subject of extensive study. In man a number of cases of such haematologic abnormalities has been reported following exposure to benzene or benzene containing industrial products (Erf and Rhoads, 1939 ; Gall, 1938 ; Leitner *et al*, 1949). Hamilton (1931) in an analysis of the histories of these patients observed a great individual variation in their response. Not infrequently, patients exposed to a relatively small dose have died, while others exposed over a long period of time and to higher concentrations of the drug, have survived, and indeed, have had no symptoms. Similarly, studies with benzene on experimental animals led Selling (1916) to conclude that individual susceptibility was a strongly

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determinant factor. Working on a hypothesis that the haematologic alterations so frequently reported following exposure to benzene were of an immunologic origin, we tried to sensitise rabbits by injecting small doses of benzene both by intravenous and intramuscular routes and observed the occurrence of an entirely unrelated phenomenon which resembled anaphylaxis in some respects. The present paper is a study of the nature of that phenomenon, which for the want of a better name has been called pseudo-anaphylaxis.

Method and Material

Newzealand white rabbits weighing 2·0 to 3·0 kg. were employed. For the purpose of intravenous administration a five per cent solution of benzene was prepared in 60 per cent ethyl alcohol diluted with double distilled water. Ethyl alcohol from the same stock and sodium chloride solution were injected as control. It was not possible to continue the intravenous injections since most of the animals died following the first injection. In another group, therefore, intramuscular injections of benzene mixed in equal parts with olive oil were given. Control animals received olive oil only in equal amounts. Intravenous injections were made in the marginal ear vein of rabbits and for intramuscular administration, 1·0 ml. of the mixture was injected into the thigh muscles on alternate days using a different limb each time.

All white cell enumerations were done with Thoma's pipette, using 3 per cent acetic acid as the diluent, and a dilution of 1 in 20. Coagulation time was determined according to the technique of Lee and White.

Results

Following the very first injection of as little as 0·025 ml. of benzene intravenously, the occurrence of an anaphylaxis-like reaction was observed in 6 out of 10 rabbits. When the reaction occurred, it started within 5 to 15 seconds of the injection and was characterised by restlessness, flushing, dyspnoea, erection of hair around the neck, sneezing and coughing. The respiration, thereafter, became very shallow and rapid, the animal uttered a sharp cry, whole of the body was thrown into convulsions, and the animal died in a state of terminal cyanosis. Frequently there was urinary incontinence. Five animals out of eight died during such a reaction. Parenteral administration of adrenalin or atropine did not alter the reaction. Likewise, administration of ether anaesthesia before the injection was without any effect. In another group of animals intravenous injections of benzene were given after brain and spinal cord had been destroyed by pithing. This also did not modify the occurrence of the reaction in any way.

At autopsy, the main changes were seen in the heart and lungs. On opening the thorax, the lungs filled the whole of the thoracic cavity. They were light and distended and floated on water. A number of areas of pin-point haemorrhages were seen scattered throughout the surface of both the lungs. Trachea and bronchi were filled with copious amount of thin, frothy fluid. There was distension of the right side of the heart. After careful dissection no thrombi could be seen either in the cardiac chambers or in the pulmonary artery.

Examination of blood of the surviving animals immediately after shock showed a profound reduction in the total leukocytes (Table 1). The leukopenia was due mostly to the disappearance of polymorphonuclear cells from the circulation. The red cells did not show any evidence of slumping nor was there any alteration in the coagulation time of blood before and after the shock.

Table 1—Showing Changes in the Total Leukocyte Count and Coagulability of Blood of Rabbits Following Injections of Benzene by Intravenous Route

Rabbit No.	Time	Leukocytes x 10³ per c.mm.	Poly	Mono	Coagulation time in minutes
1	Before shock	9·0	5,400	4,600	8·5
	After shock	3·5	700	2,800	9·0
2	Before shock	6·8	4,420	2,380	6·5
	After shock	2·4	720	1,680	6·5
3	Before shock	8·7	4,872	3,828	9·0
	After shock	3·1	465	2,635	9·5

Injections of ethyl alcohol and sodium chloride solutions intravenously in identical doses were without any effect.

In the group receiving benzene and olive oil mixture intramuscularly, the development of the reaction was neither so constant nor of the same intensity as observed in the group injected intravenously. Of the ten animals injected by intramuscular route, three showed the anaphylaxis-like phenomenon in the sixth and two in the eighth

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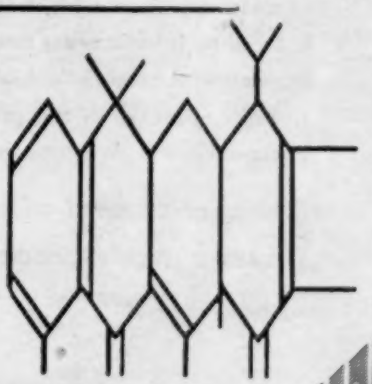

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week of the start of injections. The reaction was identical to that observed in animals of the first group in all respects, except that it was mild in form and only two animals died during the reaction. Postmortem appearance of the viscera of these animals were very much the same as described before. Changes in blood before and after shock are recorded in Table 2.

TABLE 2—SHOWING CHANGES IN THE TOTAL LEUKOCYTE COUNT AND COAGULABILITY OF BLOOD OF RABBITS FOLLOWING INJECTIONS OF BENZENE BY INTRAMUSCULAR ROUTE

Rabbit No.	Time	Leuko-cytes × 10^3 per c.mm.	Poly	Mono	Coagulation time in minutes
1	Before shock	14·5	8,410	6,080	8·0
	After shock	5·8	464	5,336	9·0
2	Before shock	20·0	10,000	10,000	7·5
	After shock	6·5	780	5,720	8·0
3	Before shock	12·0	7,200	4,800	8·5
	After shock	4·5	450	4,050	8·0

Attempts to sensitise guineapigs with the serum of supposedly immunised rabbits were unsuccessful. It was not possible to shock the recipient guineapigs by subsequent injection of benzene. Likewise we could not demonstrate 'Shultz-Dale' phenomenon using virgin guineapig uterine strip. However, it was possible to produce the reaction in the same donor rabbit following another injection of benzene intramuscularly.

DISCUSSION

That the phenomenon observed by us is not anaphylaxis is evident from the fact that it failed to meet many of the requirements for true anaphylaxis as proposed by Wells (1921). It has not been possible to sensitise guineapigs with the serum of 'prepared' rabbits. Similarly, we could not demonstrate 'Shultz-Dale' phenomenon. Previous injection of adrenalin or atropine did not prevent the occurrence of the reaction. It was possible to shock the same animal more than once, and apparently, the occurrence of the reaction once did not desensitise the animal. Moreover, in the group injected with benzene intravenously, the very first in action produced the reaction and previous sensitisation was not necessary.

The nature of the phenomenon was further investigated in order to find out if it had any relationship to 'nitritoid crisis' observed after injections of antileutic drugs. But repeated injections of bismuth salicylate intramuscularly into three rabbits led only to a toxic death after 12 weeks. No reaction whatsoever was observed. The fact that the reaction could be produced in pithed animals as well, shows that the central nervous system has no possible role in its causation.

Hauzlik and Karsner (1924) have shown that such 'anaphylactoid reaction' can be produced after injection of a variety of substances. According to him, the development of reaction in the recipient animals is due to the formation of thrombi in the pulmonary artery. We failed to notice any thrombi by naked eye as well as microscopic examination of the tissue from the lungs and pulmonary artery. As such, the two reactions would appear to be different in nature.

The nature of the phenomenon is not very clearly understood. It appears that in our animals the cause of this reaction was respiratory failure due to sudden bronchospasm. Histologically there was evidence of spasm of the bronchi and pulmonary oedema. Moreover, it was possible to reverse this reaction in three of the animals after forceful aeration of the lungs. Similar findings have been reported by Steiner (1934) who was also able to prove the existence of bronchospasm by tracings of the bronchi through Koessler and Lewis apparatus. The capacity of benzene to cause contraction of the smooth muscle of blood vessels and of heart has been shown by Dautrebande (1933) in experimental animals.

On the basis of his studies Steiner (1934) has suggested that the first few injections of benzene serve to produce a zone of inflammation at the site of injection, and that on subsequent administration, more of the substance is absorbed from the hyperaemic site so that the concentration reached in the blood is adequate to produce spasm of the bronchi. According to this, immediate development of reaction and death of animals receiving benzene intravenously for the first time would appear to be due to a sudden increase in the concentration of the drug past the lethal level. However, it would still remain to be explained as to why the animals injected with benzene intramuscularly developed the reaction even when the drug was injected at a site where there was no evidence of inflammation and where no previous injection had been given.

SUMMARY

The occurrence of an anaphylaxis-like phenomenon has been observed in rabbits following an

intravenous injection of benzene for which no previous sensitisation is necessary. Repeated administration of the drug by intramuscular route also produces the same reaction. In neither case is the reaction reversed by previous injection of adrenalin or atropine. The possible mechanism of the production of this phenomenon is discussed.

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PRACTITIONERS' SERIES

EXPERIENCES WITH CROTONYL-N-ETHYL-O-TOLUEDINE CREAM AS AN AID TO LOCAL TREATMENT OF PRURITIC SKIN DISEASES

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Pruritus is produced by subliminal stimulation of the nerve endings of pain. The immediate cause is a change in the surface tension of the prickle cell layer of epidermis. The stimulus that is produced is carried by fine myelinated nerve for the pricking type and non-myelinated nerve for the burning type of itching. It has been suggested that ordinary cooling lotions, which may act on the surface tension may be more helpful than stronger remedies which act by paralysing the nerve endings. There is no doubt that a far better abolition of itching is accomplished by a stronger local anaesthetic, but its action is temporary, and sooner or later one gets a rebound phenomenon with increased pruritus when the anaesthetic effect wears off. Besides, there is always the chance of sensitization and drug addiction in such cases.

A cooling lotion, on the other hand, is free from all these disadvantages, and experience has shown it to be surprisingly more effective than it was ever thought to be. A cooling cream has the advantage of being much less messy than a greasy ointment, prevents dryness and penetrates much deeper, and allows evaporation with surface condensation of liquid. It can also be used for a longer period, e.g., in the case of psychogenic pruritus without any local cause. We were struck by the rapid improvement of pruritic condition in scabies patients with such cream, and so thought of extending it to cases of non-scabietic origin.

METHODS AND MATERIALS

A series of 323 patients suffering from various skin disorders were selected for study. The value of the crotonyl ethyl toluedine cream as a symptomatic remedy for pruriginous conditions especially, and for burning, tingling, or such other sensations were observed. Furthermore it was observed that with the improvement of the pruritic condition, there was remarkable improvement of the basic skin condition in many cases. This drug also helped in ameliorating secondary infection and thereby indirectly helping the cure of the skin condition.

Mode of application—The treatment generally consisted of 2-3 daily applications, after cleaning the area by means of compresses, soap, rectified spirit or newer soapless detergents, if necessary. The cream was carefully avoided in acute weeping and oozing conditions. Generally dry conditions were selected for application. When nominal weeping affections were present Condy's or normal saline compress was applied beforehand. In cases of burns, we applied sterile dressings with this cream but the best soothing action was achieved by mixing it with equal quantity of sterile normal saline and then applying it.

RESULTS

Out of 323 patients suffering from different types of skin diseases common from April to August in Bengal a good number showed excellent result in the form of complete symptomatic relief. Details are given in Table 1.

It would appear from Table 1 that the drug was of value in about 87 per cent of all the cases we selected for our observation with the ointment.

TABLE I—SHOWING RESULT OF TREATMENT WITH CROTONYL ETHYL TOLUIDINE CREAM

Disease	No. of patients	Improvement of secondary infection and pruritus		Improvement of pruritus only		Failure
		Immediate	Delayed	Good	Moderate	
Acne	21	5	9	—	3	4
Scabies	10	5	5	—	—	—
Scrotal dermatitis	10	4	5	—	1	—
Folliculitis	10	5	4	—	1	—
Impetigo	24	8	13	—	3	—
General pruritus	7	3	3	—	—	1
Penile pruritus	6	2	4	—	—	—
Anal pruritus	7	1	4	—	2	—
Ringworm and *Tinea cruris*	15	—	3	3	7	2
Eczematous ringworm	30	—	4	9	16	1
Ringworm nail	2	—	—	—	—	2
Tinea interdigitalis of the feet	3	—	—	—	3	—
Seborrhoeic dermatitis	26	3	17	—	2	4
Seborrhoea sclap	1	—	1	—	—	—
Seborrhoids	1	—	1	—	—	—
Auricular dermatitis (seborrhoeic)	3	—	3	—	—	—
Prickly heat	7	3	4	—	—	—
Neurodermatitis	18	—	13	—	1	4
Allergic dermatitis	17	—	5	3	7	2
Dermatitis medicamentosa	10	7	3	—	—	—
Contact dermatitis	2	—	2	—	—	—
Burn 1st and 2nd degree	6	3	2	1	—	—
Insect bite	9	8	1	—	—	—
Senile pruritus	4	—	—	1	3	—
Bed sore	1	—	1	—	—	—
Friction ulcer	3	2	1	—	—	—
Traumatic injury	4	4	—	—	—	—
Pediculous dermatitis	1	—	—	—	1	—
Dermatitis of nipples	1	1	—	—	—	—
Cracks and fissure	1	—	1	—	—	—
Orogenital syndrome	1	—	1	—	—	—
Raynaud's disease	1	—	—	—	1	—
Dermatitis herpetiformes	1	—	1	—	—	—
Herpes zoster	3	—	—	1	2	—
Herpes labialis	1	—	1	—	—	—
Pompholyx	8	—	—	1	6	1
Psoriasis	6	—	—	—	2	4
Lupus erythematosus	5	1	—	1	3	—
Urticarial rash	7	—	—	2	4	1
Pityriasis rosea	5	—	—	4	1	—
Sycosis barbae	6	—	—	1	2	3
Pityriasis versicolor	3	—	—	—	1	2
Erythema nodosum	1	—	—	—	1	—
Lichen planus	3	—	—	—	1	2
Warts—secondary infection	1	1	—	—	—	—
Chloasma (porphyrin deposit on skin)	1	—	—	—	—	1
Hyperkeratosis	2	—	2	—	—	—
Cystadenoma	1	—	—	—	—	1
Miscellaneous group (inadequate period of observation)	7	—	—	—	1	6

This selection comprised of most of all the types of cases we get in our department. Among this figure 56 per cent was noticed to undergo improvement of the skin conditions, along with the alleviation of the complaints. 20 per cent of the patients was readily cured—the applications were not needed exceeding once a week ; while 36 per cent of them took a considerable time ranging from about one week to four weeks. But all through this period the skin condition was definitely improving.

About 13 per cent cases did not respond to crotonyl ethyl toluedine cream—they felt no relief and no improvement even after repeated and prolonged applications.

In cases of scabies, folliculitis, impetigo and generalised pruritus, 2-3 daily applications brought about a complete relief and regression of symptoms within 1-2 weeks. In all these cases scratching was no more a trouble, and subsequent secondary infection was avoided. Most probably this phenomenon was of beneficial effect to the underlying affection. The skin condition gradually improved and was finally cured. With a few exceptions, residual marks on the skin did not appear. All scabies cases got cured, 50 per cent showing immediate results. 90 per cent of all the cases of scrotal dermatitis, mostly of fungal infection associated with secondary infection, showed good results. In penile pruritus, mostly of diabetic origin, all the cases showed immediate response.

In folliculitis, crotonyl ethyl toluedine cream cured 9 out of 10 cases, 4 of them improving slowly. It took more than 3 weeks to cure them completely and graduated ultraviolet rays had to be administered. Itching was relieved in all the cases.

In cases of impetigo and after the appearance of pustules were checked, crotonyl ethyl toluedine cream controlled irritation and itching in all. It, however, failed to cure this condition in 12 per cent cases.

In anal pruritus, where in most cases oxyuriasis infestation was associated, we got no appreciable result until the particular anti-worm treatment was introduced.

In fungal infections (excluding seborrhoea and seborrhoeic dermatitis) including ringworm, tinea cruris, eczematous ringworm, ringworm of the nail and tinea interdigitalis of the feet, 52 per cent cases showed moderate symptomatic relief.

In seborrhoeic conditions, patients were advised to apply the cream twice daily and were asked to wash with good soaps, e.g., coal tar or sulphur soap. In acute state where inflammation and erythema appeared, we used it with good result.

In allergic dermatitis, the cream was good enough to relieve itch in 59 per cent of cases.

Cases of dermatitis medicamentosa due to application of strong fungicidal ointments showed very good immediate response.

We had only 6 cases of 1st and 2nd degree burn and application of the cream was just as efficacious as routine hospital treatment with sulphanilamide and sterile vaseline gauze. No secondary infection was seen. In one case only we had to call for antibiotic measures. In cases of friction ulcer and moderate bed sore crotonyl ethyl toluedine cream had good effects. All patients were cured.

We saw only one case of dermatitis herpetiformis—it was finally cured with erythromycin.

Summary

Crotonyl ethyl toluedine cream was tried in 323 patients for the pruritic condition associated with various skin conditions.

In 87 per cent of the cases the result was satisfactory and in 20 per cent the improvement was rapid.

In 13 per cent cases which included cases of sycosis, psoriasis, pruritus along with pityriasis versicolor, leucoderma etc. there was no improvement at all. It was found harmless in all the cases.

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SPECIAL ARTICLE

RECENT TRENDS IN THE MANAGEMENT OF PULMONARY TUBERCULOSIS

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Within the past ten years, two important new weapons have been added to the armamentarium

of the physician who treats patients with pulmonary tuberculosis. Today, in addition to general measures, and to bed rest, and to the various types of collapse therapy, powerful new drugs are available as well as new surgical techniques. This paper is concerned with recent trends in thinking regarding the proper use of these two weapons, antimicrobial drug therapy, and resection therapy, and especially, with their combined use in the management of the patient with pulmonary tuberculosis.

The exciting story of the search for an antimicrobial drug and of the crucial experiments which indicated that at last, for the first time, in streptomycin, a drug was available which was clearly effective against progressive tuberculosis, is beautifully retold in a recent journal by the investigator himself who later became a victim, as the result of his investigations, of this dangerour disease (Feldman, 1954). The stubborn barrier that pulmonary tuberculosis had presented for centuries against every conceivable kind of pharmaceutical preparation, had at last been breached. Para-aminosalicylic acid and isoniazid quickly followed (Fletcher, Paul and Ranbhise, 1953). A host of less effective drugs, or more dangerous ones such as amithiozone, pyrazinamide, neomycin, viomycin, iproniazid, and oxytetracycline have also been investigated, or are still being studied, but streptomycin and dihydrostreptomycin still remain the backbone of antimicrobial therapy for pulmonary tuberculosis (D'Esopo, 1954).

The idea of cutting out diseased portions of the lung for tuberculosis has occupied the minds of surgeons for a good many years (Thornton and Adams, 1942). Bloch, a German surgeon, bravely resected both apices of the lungs of a patient who was thought to have pulmonary tuberculosis, as long ago as 1881, and when the patient died as a result of the surgery, Bloch committed suicide. Ironically, the patient was later shown not to have had tuberculosis. Later surgeons were more successful. The first planned lobectomy for tuberculosis was accomplished successfully only twenty years ago by Freedlander. As improved anesthetic and surgical techniques appeared, resections became more and more common, and data concerning experience with several thousand resections has accumulated relatively rapidly in the world's medical literature in the past eight years (Bickford *et al*, 1952 ; Chamberlain *et al*, 1953 ; Murphy and Rayl, 1953 ; Overholt *et al*, 1953 ; Ryan *et al*, 1952 ; Sweet, 1950 ; Takaro *et al*, 1952).

Management of the Patient

The diagnosis having been established, the physician is faced with the management of the patient. A few basic principles are worth reiterating, although apparently constant repetition has dulled their importance in the minds of many practitioners. Many patients achieved arrest of their disease years before either antimicrobial therapy or surgery became available, by bed rest and adequate diet alone. It has not yet been shown that bed rest is no longer necessary, and the physician's responsibility to explain the importance of bed rest to his patient, and to insist upon its strict observance is very great. The patient who has actually observed strict bed rest before he comes to us, is the unusual one.

The necessity and effectiveness of *long-term, uninterrupted, combined* antimicrobial therapy has now been definitely established (D'Esopo, 1954 ; M. R. C. Rep., 1953 ; Ryan *et al*, 1952 ; Schwartz, 1953). Let us define or discuss each important adjective in the above sentence.

Long-term—It is now believed that the minimum period of combined therapy should be twelve months, or four to six months after three criteria (constituting the therapeutic goal to be attained) are reached. These are (a) stability of lesions on serial roentgenograms ; (b) closure of all cavities ; and (c) the finding of consistently negative cultures. Termination of drug therapy before the target point has been reached is unwise, since relapse often follows.

Uninterrupted—Combined therapy should be uninterrupted, because resistant bacilli may emerge during interruptions of treatment and these cannot respond in the same way to a resumption of the drugs as the drug-sensitive bacilli can.

Combined—Streptomycin (hereafter abbreviated SM), para-amino-salicylic acid (PAS), and isonicotinic acid hydrazide (INH), and other antimicrobial drugs should almost never be used alone, in the treatment of tuberculosis. It has been found that the combinations of SM with PAS, or of SM with INH, or of PAS with INH have delayed or prevented the emergence of tubercle bacilli resistant to either of the drugs used, thus prolonging by many months, the effectiveness of both drugs. The first of the drugs which was discovered to have this effect of delaying the emergence of resistance to SM was PAS. A parenthetic word about this drug is now in order.

PAS in doses of 12·0 g. per day has the sanction of vast experience, and should be the dose for the average patient. Patients under 100 pounds in body weight might do well with 10 g. per day, but smaller doses than this have been shown to be less effective in preserving sensitivity to SM. The sodium salt of PAS is considerably heavier than free PAS ; therefore, 16·5 g. of Sodium PAS contains only 12·0 g. of free acid,

while 12·0 g. of the salt contain only 8·7 g. of free acid, which is not an adequate dose.

There has not been found any essential difference between the possible combinations of SM, PAS, and INH as far as therapeutic efficacy is concerned, provided the dosage of these drugs has been adequate. In the case of SM, minimum adequate dosage is 1·0 g. twice weekly. The dosage of PAS has been discussed. INH should be given in doses of 150-300 mg. daily, depending upon the weight of the patient. In our institution, patients heavier than 100 pounds have usually been given the larger dose.

Some investigators advocate the use of all three drugs at once (Waring, 1954). There is no evidence that all three drugs are more effective than two in pulmonary tuberculosis, although in the treatment of miliary tuberculosis and tuberculous meningitis, the trio is more effective, and all three are regularly used. In the treatment of pulmonary tuberculosis, there is a growing sentiment against the use of SM and INH together, for the reason that resistance to both drugs may occur, and the effectiveness of the two most potent drugs is lost (Schwartz, 1954). Thus, many individuals prefer combining SM with PAS or INH with PAS, thus keeping one potent drug in reserve.

The development of resistance can be established definitely only by culturing the bacilli and establishing their sensitivity to various concentrations of the drugs ; or by the clinical course of the patient, in spite of adequate treatment ; or by inference, if a patient is known to have had inadequate doses of PAS, especially, even though the combinations were used. At the present time, in India, the only combination of drugs which have reasonable claim to effectiveness against strains of bacilli resistant to SM, PAS, and INH are viomycin in a dose of 2·0 g. twice weekly, combined with oxytetracycline, 1·0 to 2·0 g. daily. This is a very expensive combination, and not without a moderate hazard of toxicity, but it does have some degree of effectiveness. Another recent contribution has been the report of the effectiveness of pyrazinamide or PZA, 3·0 g. daily, with INH 300 mg. daily, provided that neither drug had been used previously (Schwartz and Moyer, 1954) Unfortunately, PZA is not available in India on the open market as yet, being manufactured only for investigative purposes in the U.S.A.

The efficacy of amithiozone is usually not sufficient to alter the patient's course significantly, except in certain lesions of the mucous membranes of the larynx or the gastro-intestinal tract. In such cases, significant relief of these lesions has been noted from the exhibition of amithiozone, even when SM-resistant tubercle bacilli were present (D'Esopo, 1954).

Surgery

Certain generalisations of clinical usefulness can be mentioned before specifying the indications for surgery.

1. Cavities which do not close after six months of adequate antimicrobial therapy will probably not close thereafter, and will require collapse or resection.

2. If cavities do not close, sputum cultures will often become positive again even though the drug therapy has been continued uninterruptedly : whereas cultures usually remain negative if the cavities have closed or filled in.

3. If cultures remain positive after 4-6 months of adequate drug therapy, there is little sope of their becoming negative solely by a continuation of drug therapy.

4. The timing of surgery for cavities which do not close during chemotherapy is of great importance, because cultures which are still positive by the sixth month, usually consist of bacilli that are resistant to SM. The decision for surgery should be made while the drugs which the patient is receiving are still effective.

5. An original course of combined chemotherapy is more effective than a re-treatment course in affording protection against complications in thoracic surgery.

6. The incidence of significant complications is greater, the greater the magnitude of the surgery. (This is not altogether true, for in some series, although the mortality rate from segmental resections was very low, and much less than for lobectomies or pneumonectomies, the rate of complications was much higher for segmental resections. These were mostly relatively easily handled however (Murphy and Rayl, 1953).

The major indications for resective surgery in pulmonary tuberculosis have become fairly well standardised, and about these there is now very little difference of opinion. They are listed as follows :

1. *Endobronchial tuberculosis,* including bronchostenosis and bronchiectasis secondary to tuberculosis.

2. *Lower and middle lobe cavities,* since these respond so poorly to thoracoplasty.

3. *Thoracoplasty failures,* or cavities persisting under a previously performed thoracoplasty.

4. *Destroyed lobes or lungs.*

5. *Large tuberculomas*—or circumscribed caseous nodules or filled-in cavities, which may otherwise some day slough and cause spread of disease.

Less well-defined indications include giant cavities, and unilateral upper lobe disease which might respond well to thoracoplasty. The lesions about which the greatest controversy exists are the residual necrotic lesions following antimicrobial therapy. It has been shown that in these closed lesions although the tubercle bacilli can be found on smears, they often cannot be cultured in the usual 6-8 weeks, nor can they be made to produce the disease in laboratory animals. This raises the question of their viability, and thus, of the need for resecting all such lesions. Between the two extreme schools of thought, is the middle group which feels that it is better to advise resection of larger residual necrotic lesions (arbitarily 2 cm. or more in diameter) but to allow the smaller ones to be unresected and to remain under periodic roentgenographic observation. Pleuropulmonary tuberculosis should also be mentioned, since decortication of a tuberculous empyema, in conjunction with resection, has become an accepted procedure. Sometimes carcinoma of the lung occurs in conjunction with pulmonary tuberculosis, or masquerades as pulmonary tuberculosis, and this may constitute an indication for surgery.

The case of a particular patient is carefully reviewed by a conference of the physicians and surgeons interested in this type of work, and the decision for or against surgery is made by common agreement, after careful review of the patient's entire course, his general condition, his age, and his response to previous treatment. His drug therapy is planned in such a way that emergence of strains of tubercle bacilli resistant to the drugs used will be delayed or supressed to a time well beyond operation, or a combination of drugs will be used pre- and post- operatively to which the patient's bacilli are known to be sensitive.

Portions of lung tissue ranging from small wedges, to anatomical segments, or lobes, to entire lungs are now safely resectable. Since the larger the portion of lung which must be removed, the more the danger of significant complications and difficulties, the value of definitive treatment early in the disease, before major involvement has occurred, is obvious. Segmental resection of one or more segments of the 18 to 20 anatomical segments into which the two lungs are divisible, has been a more recent and valuable development of this type of surgery, allowing minimal removal of normally functioning lung tissue with maximal removal of diseased lung, even when the foci occur in different lobes of the same lung, or in both lungs. Much less loss of pulmonary function occurs ordinarily, after segmental resection than after thoracoplasty, and this becomes an important consideration in the treatment of the patient with bilateral disease.

Results

In the early years of resection for pulmonary tuberculosis, a 20 per cent operative mortality was considered to be quite acceptable, in view of the fact that the cases were largely those of long-standing far-advanced disease requiring the removal of large portions of lung tissue—entire lungs or lobes. As experience was gained and more favourable cases were operated, the mortality rate diminished markedly, and with the aid of the antimicrobial drugs and skilled anaesthesia, the mortality rate for lobectomies today should be 5-10 per cent and for segmental resections, 1-2 per cent. In from 80 to 90 per cent of cases submitted to segmental resection as the primary approach to treatment, lasting control of tuberculosis can be expected.

Summary

The intelligent use of antimicrobial therapy and resective surgery in pulmonary tuberculosis requires careful individual appraisal and planning, by the interested physician and the thoracic surgeon. Long-term uninterrupted combined antimicrobial therapy has now been accepted as standard treatment for pulmonary tuberculosis. After a reasonable length of time has elapsed on adequate drug therapy (about six months), residual cavities must be collapsed or resected, if possible. Large necrotic foci, even though the sputum is negative, should probably be resected. The other indications for resective surgery are the standard ones, but surgery has been made safer by adequate preparation with drugs, and many patients who would not have been candidates for surgery, prior to the advent of antimicrobial therapy, can now be offered this additional tool.

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PUBLIC HEALTH

DIETARY HABITS IN UTTAR PRADESH IN RELATION TO INCOME

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In earlier communications (Govil, 1952 ; Govil *et al*, 1953), the dietary habits of school boys in Uttar Pradesh living in institutions in rural areas and belonging to low-income groups were correlated to their nutritional state. The diets had high cereal content and lacked in protective foods in adequate amounts. Inadequacy of proteins of good quality, of minerals and of some important vitamins in varying degrees was an important feature. Poverty was the predominant cause for the qualitative and quantitative defects in the diets. The purpose of the present investigation was to find out the relationship of the dietary habits of the Uttar Pradesh families to income, i.e., whether an increase in income resulted in the increase of consumption of protective foods so essential for the maintenance of good health and whether any improvement in diets was possible within the income of different groups.

PROCEDURE

The dietary intake of 238 families consisting of 1,489 persons was studied during 1952, 1953 and 1954. This laboratory prepared schedules which were supplied to those who were desirous to know if they and their families were consuming food of adequate calorific value and containing all the proximate principles in right amount. These schedules were filled in by the head of family. During the period of survey each family was visited once and sometimes twice daily at the time of preparation of meals by one of the staff of the laboratory, equipped with a portable balance with a view to check the entries in the schedules by weighing all the ingredients of food in their raw state. This service was free and without any obligation. The families surveyed belonged to different areas of the State and the data so collected on the schedules were given voluntarily and can be expected to be reasonably accurate. These schedules were analysed and the deficiencies in the dietaries, if any, were pointed out along with the methods of improvement.

As the total income of any family does not indicate its purchasing power individually, which depends upon the number and the age and sex composition of its members, the families were divided into four economic groups on the basis of income per consumption unit : (*a*) Group I, i.e., those families with monthly income upto Rs. 30/- per consumption unit (C.U.) ; (*b*) group II, i.e., those of from Rs. 31/- to Rs. 40/-; (*c*) group III. i.e., those of from Rs. 41/- to Rs. 50/- and (*d*) group IV consisting of families with an income of over Rs. 50/- per month, per C.U.

For the sake of brevity group numbers will be given when referring to any one of the income groups later on in the paper.

The average daily intake of each type of food in ounces by each consumption unit in each group of families was calculated by dividing the total weight of raw food actually cooked by the number of days during the period and the number of consumption units. It has been seen that in Indian houses food left over from one meal is usually consumed at the next meal and that there is practically no plate wastage. The food stuffs entering into the diets were calculated for the various nutrients according to Field Service Hygiene Notes India (1945). In the analysis of the diets average values have been taken wherever possible and allowance has not been made for destruction of nutrients by cooking. Losses vary greatly according to the method of preparation, cooking and serving. There is little loss in cooking of food constituents other than vitamins destroyed by heat or extracted into washing or cooking water which is not consumed.

The average daily intake of the different classes of food per C.U. in ounces in each of the family groups is shown in Table 2.

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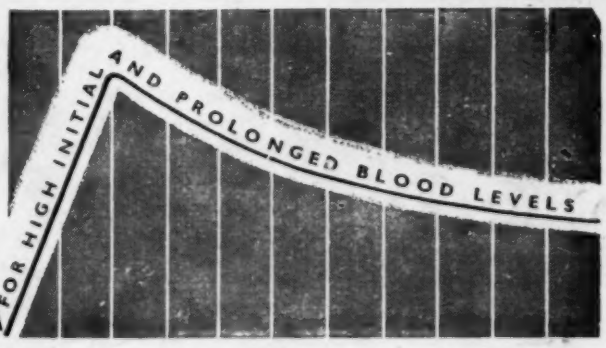

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Wheat, rice and cheap grains like barley, bajra (*Pennisetum typhoideum*), juar (*Sorghum vulgare*) maize and peas were all consumed. The rice was both of parboiled and raw type. The quantity of wheat consumed showed an increase with the increase in the income per C.U. while that of rice and cheap grains decreased. The average intake of pulses is higher in rice diets, and this may account for its greater consumption in income groups I and II. In respect of green leafy vegetables increase in income appeared to have no effect on its consumption. Other vegetables, fruits and sugar were found to maintain an upward trend with the rise in income level. Flesh foods were not consumed by all the families surveyed. 55 per cent of the families in group I, 32 per cent in group II, 30 per cent in group III and 35 per cent in group IV took meat and other non-vegetarian foods. These foods were not taken regularly and their intake had no relationship with income. The intake of ghee (butter fat) and that of oil and vegetable product, showed a positive and negative correlation to the increase in income respectively.

Milk is a valuable food especially for the growing persons. Families with a greater number of children need it more. Its intake was lowest in the families of Group I where the average number of children per family was more than that in families of other groups and was highest in group IV. It was consumed as liquid milk as well as in the form of curd.

The amount of the various nutrient principles consumed per C.U. per day are shown in Table 3.

TABLE 1—SHOWING DETAILS OF FAMILIES IN THE DIFFERENT INCOME GROUPS

Classification of families	Number of families in each group	Monthly income per C.U.	Total number of consumers	Average number of consumers per family	Average composition of the families			Average number of C.U. per family	Average monthly income in rupees per C.U.
					Male	Female	Child		
Group I	147	Upto Rs. 30	1021	6·9	2·3	2·1	2·5	5·7	19·2
,, II	34	Rs. 31 to Rs. 40	234	6·9	2·7	1·9	2·3	5·7	34·2
,, III	32	Rs. 41 to Rs. 50	144	4·5	1·8	1·4	1·2	3·8	48·0
,, IV	25	Over Rs. 50	90	3·6	1·9	0·8	0·9	3·2	74·0

TABLE 2—SHOWING CLASSES OF FOOD STUFFS CONSUMED

Family group	Cereals			Total	Pulses	Vegetable		Milk & Milk products	Fruits	Fat		Sugar	Flesh foods
	Wheat	Rice	Cheap grains			Green leafy	Others			Ghee	Oil & vegetable product		
I	5·4	8·7	5·6	19·7	3·4	2·5	3·6	3·2	0·4	0·3	0·5	1·6	0·6
II	6·6	8·5	1·9	17·0	3·2	2·3	5·6	9·3	0·6	0·8	0·5	1·9	1·3
III	8·7	6·9	2·0	17·6	2·7	2·2	5·9	9·2	1·3	1·2	0·3	2·1	0·9
IV	10·8	5·5	1·3	17·6	2·7	2·7	6·0	12·4	2·0	1·7	0·1	2·1	0·7
Balanced diet	...		...	14	3	4	6	10	3	2		2	3+ one egg

TABLE 3—SHOWING CALCULATED DAILY INTAKE PER C.U. IN THE DIFFERENT INCOME GROUPS

Family groups	Average gross calories	Protein (g)		Fat (g.)	Carbohydrate (g.)	Calcium (mg.)	Iron (mg.)	Vitamin A (I.U.)	Aneurin (mg.)	Nicotinic acid (mg.)	Riboflavin (mg.)	Ascorbic acid (mg.)
		Animal	Vegetable									
I	2857	5·7	73·7	40·3	543·3	688·5	30·0	2190	2·0	18·2	1·1	50·3
II	2942	14·7	68·0	64·9	505·4	900·1	38·4	2589	2·1	19·3	1·3	54·3
III	3030	12·9	69·5	69·9	516·6	900·5	39·1	2828	2·2	20·5	1·3	60·3
IV	3206	15·3	72·9	83·9	521·4	1095·7	44·0	3641	2·4	22·1	1·5	74·9

It will be appropriate now to consider the daily dietary intakes in terms of total calories and essential nutrients. Physique, habits of life and other factors are so variable in different families that an uniform application of one scale of energy requirements per C.U. would not be suitable. Intake of less than 2,600 calories per C.U. per diem may safely be considered as below standard and an allowance of about 3,000 calories as adequate. The average daily intake of calories per C.U. in family groups I to IV were found to be 2,857, 2,942, 3,030 and 3,206 respectively. According to the arbitrary standards suggested above, families of the groups I and II did not consume food of adequate calorific value. With increase in income the caloric intake tended to become more and more satisfactory.

The nutrient values of the diets surveyed, when compared to daily allowances recommended by the Nutrition Advisory Committee Indian Research Fund Association (1944), appear below par for several nutrients. The intake of total protein may be considered satisfactory but that of the animal protein is certainly below standard in all the groups.

Carbohydrates are present in dietaries in excessive amounts. The intake of fat except in group I and that of aneurin, nicotinic acid, iron and riboflavin was satisfactory. Calcium was adequate in group IV only. The intake of vitamin A, an extremely important food principle, was below the accepted standard of 3,000 to 4,000 I.U. except in group IV and that of vitamin C was adequate in group III and IV only if 50 per cent is deducted from uncooked value for destruction of ascorbic acid in cooking. The diets in the income groups of I and II would not provide 30 mg. of vitamin C considered necessary (Medical Research Council, 1948). Increase in income does show an increase in the consumption figure for proteins, fat, calcium, aneurin, nicotinic acid, riboflavin and vitamins A and C.

Discussion

Poverty, ignorance of healthy food habits, religious objections, traditional dietary habits and scarcity of protective foods are the causes of qualitative and quantitative defects in the dietaries. To produce 1,000 calories in the form of milk, meat and most of the vegetables, require more land than to produce 1,000 calories in the form of root vegetables, sugar, wheat or rice, i.e., protective foods give a smaller calorie return per unit of land than cereals and root crops. Well balanced diets containing adequate amounts of protective foods are, therefore, more costly than ill-balanced diets which are usually attributed to low purchasing power. In consideration of the dietaries, the basic needs of the body for calories have to be fulfilled first for appeasement of hunger before any qualitative improvement can be thought of. A detailed economic survey was beyond the scope of the present enquiry, but if we calculate the monthly cost of a balanced diet per C.U. on the present market rates in U.P. it comes to not less than Rs. 34/- including the cost of condiments and fuel. Slight variation in cost may occur depending upon the locality and availability of food stuffs but it will not be much.

The monthly expenditure on food actually consumed per C.U. calculated on the same rates come to Rs. 17·2 in group I, Rs. 24·5 in group II, Rs. 24·6 in group III and Rs. 28·4 in group IV, while the average monthly income was Rs. 19·3, Rs. 34·2, Rs. 48·0 and Rs. 74·0 respectively. 40 per cent of the families surveyed under group I were living either on their reserves or on indebtedness. The expenditure on other major items like shelter, clothing, education of children and medical aid, etc. could not be investigated but the total expenses on food did not increase proportionately to the rise in income. The diet in groups I and II could not be expected to be any better unless the monthly income was increased to Rs. 45/- per C.U. but families in group III and IV could certainly do better. Inadequacy of calcium and vitamin A can be remedied with very little cost. Green leafy vegetables are a rich source of these nutrients and can be included in the dietaries in greater amounts to advantage. Dissemination of the correct knowledge among the householders should improve matters. Increase of animal protein in the diet would involve extra amount of money and may be difficult to provide in the lower income groups but in groups III and IV, i.e., those with a monthly income of approximately Rs. 45/- or more per C.U., it can be provided by increasing the consumption of milk and other animal foods, preferably the former.

Summary

1. An investigation into the food intake of 238 families consisting of 1489 persons was studied during the years 1952, 1953, and 1954. The families were classified into four income groups and the average monthly income per consumption unit in these groups was found to be Rs. 19·3, Rs. 34·2, Rs. 48·0 and Rs. 74·0 respectively.

2. The consumption of wheat, fruits, vegetables other than green leafy ones, sugar, ghee and milk was found greater with the increase in income.

3. Flesh foods were not consumed by all the families surveyed. 55 per cent of the families in group I, 32 per cent in group II, 30 per cent in group II and 35 per cent in group IV took meat and other non-vegetarian foods. These foods were not taken regularly and their intake had no relationship with income.

4. With the increase in income the calorie intake tended to become more and more satisfactory.

5. The intake of total protein in all the groups was adequate but that of animal protein was poor.

6. Increase in income showed an increase in the consumption figure for proteins, fat, calcium, aneurin, nicotinic acid, riboflavin and vitamins A and C.

7. The monthly expenditure on food actually consumed per C.U. in all the groups has been compared to the average income and to the cost of a balanced diet. 40 per cent of the families in group I were living either on their reserves or on indebtedness. No material improvement in the dietaries in groups I and II is possible unless the income is increased to Rs. 45/- per C.U. per month. Improvements have been suggested for other groups.

8. The total expenses on food did not increase proportionately to the rise in income.

9. The survey suggests that the increase in income is not always associated with qualitative improvement in diet and that education on proper knowledge of food and nutrition should improve matters.

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CASE NOTES

LEUKAEMIA ASSOCIATED WITH DIABETES

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Eighteen cases of diabetes with leukaemia have been reported (Joslin *et al*, 1952) of which 12 were males and 6 females; in only two instances leukaemia definitely preceded diabetes, in 3 cases precedence could not be determined.

Altogether in the literature there have been reported about 40 cases of co-existing diabetes and leukaemia. As such it has been thought worthwhile to record this case.

CASE REPORT

A male patient, aged 39 years, was admitted on 1-12-54 with the following complaints:

(*i*) Polyuria, polydypsia and polyphagia—for about 3 years; (*ii*) Irregular fever—for about 4 months; and (*iii*) Swelling of the abdomen and feet—for about 2 months.

The patient stated that about 3 years ago he had an increase both in frequency and quantity of urine along with excess of thirst and hunger and sugar was detected when the urine was examined. He was given a treatment for diabetes mellitus. For the last 4 months he had occasional attacks of slow fever and was feeling weaker day by day. He consulted a local doctor who found that the spleen and the liver were much enlarged and diagnosed the case as one of kala-azar. He was prescribed two courses of urea stibamine injections, but to no avail. He gradually went downhill, the abdomen increased in size, the feet were swollen and at this stage he was admitted in the hospital.

On examination: The patient was of average build. Nutrition was poor with moderate anaemia. There was slight oedema of the feet. P/R—80/20. B.P.—130/80 mm. of Hg., T—97°F.

The spleen was enlarged 6 fingers below the costal margin. It was firm, smooth but not tender. The liver was enlarged 3 fingers below the costal margin and it was firm, but not tender. Slight free fluid in the peritoneal cavity was detected. Heart and lungs were normal.

Ophthalmoscopic examination showed: R.E.—extensive chorioretinal degeneration following massive haemorrhage. L.E.—persistent hyaloid artery, micro-aneurysm between upper and lower temporal vessels; haemorrhage—superficial and massive along the lower temporal vessels. Diagnosis—diabetic retinopathy.

Laboratory investigations: The urine was acid in reaction with specific gravity of 1010 and albumin in fair amount. The urine sugar was 3·5 per cent. Acetone, bile salt and bile pigment or indican were not detected. Microscopic examination showed plenty of R.B.C., a few pus cells, a few granular and blood casts and a few epithelial cells.

The stool examination showed presence of hookworm ova and *E. histolytica* cysts.

Blood: Hb. 9·5 g. per cent., R.B.C.—3·9 million per c.mm., W.B.C.—100,000/c.mm., polymorphs 81 per cent., lymphocytes 10 per cent, monocyte 1 per cent and eosinophil 0·5 per cent.

There were also the following abnormal cells: Myelocytes—3 per cent, metamyelocytes—3·5 per cent and basophil—1 per cent.

The aldehyde test was negative and Chopra test was weakly positive. The bleeding time was 3 min. 45 sec. and coagulation time 4 min. 10 sec.

Blood biochemistry: Urea—54 mg., per cent, N.P.N.—50·4 mg. per cent, creatinine—1·6 mg. per cent, cholesterol—125 mg. per cent and uric acid—5·0 mg. per cent.

Sugar tolerance curve after 50 g. of dextrose:

A	(fasting)	307	mg./100 c.c.
B	—	444	,,
C	—	444	,,
D	—	500	,,
E	—	444	,,

X-ray of the chest—N.A.D.

A sternal biopsy was done on 14-6-55. The biopsy showed hypercellularity, with greatly depressed erythropoiesis. There was great increase in the granulocytes and slight increase in eosinophils. There were a few blast cells. Lymphopoiesis was depressed. Thrombopoiesis was adequate. The picture suggested chronic myeloid leukaemia.

In February 1955, the patient complained of weakness in the lower limbs with tingling and numbness and painful cramps in the muscles which were worse at night and disturbed the sleep. Ankle and knee jerks were absent on both sides.

SUMMARY

In the case reported diabetes definitely preceded leukaemia at least by 2 years and the type is chronic myeloid leukaemia. In addition the patient developed malignant triopathy—diabetic retinopathy, nephropathy and neuropathy—which are so common complications of diabetes mellitus—particularly in untreated or ill-controlled cases.

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SUBDIAPHRAGMATIC ABSCESS SECONDARY TO HYDATID CYST OF THE LIVER

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D. P., a 30 years old Hindu female, was admitted to the G. M. Hospital, Lucknow, on 1-11-54 with the following complaints:

(*i*) Pain in the right hypochondrium and back for 20 days; (*ii*) Lump in the right hypochondrium for 20 days; and (*iii*) Fever for 10 days.

There was nothing of importance in the history of past illness and family history.

The patient complained of a painful swelling in the right hypochondrium and pain on the right side of the back. The swelling went on increasing. Ten days afterwards she developed intermittent fever which was preceded by a feeling of chilliness and shivering. This lasted for eight days.

On examination the patient was a pale young adult of thin build. T—98·4°F, P/R—78/24 and B.P.—110/80 mm. of Hg. There was impaired note and diminished breath sound on the right base.

The liver, palpable 5 fingers below the costal margin on the anterior axillary line, was tender, firm and non-pulsatile. Spleen not palpable.

Laboratory investigations:

Blood: Total W.B.C.—9800/c.mm. with neutrophils—76 per cent, lymphocytes—22 per cent and eosinophils—2 per cent. R.B.C.—3·4 mill/c.mm., Hb.—60 per cent (9 g. per cent).

Liver function tests:

van den Bergh—negative; Icteric index—6 units; Serum bilirubin—Less than 0·5 g. per cent; Alkaline phosphatase—14 units (K.A.); Serum cholesterol—100 mg. per cent; Thymol turbidity—10 units; Cephalin-cholesterol flocculation—plus +; Serum proteins (total)—6·6 g. per cent; Serum albumin—3·7 g. per cent.

Aspirated material from the 6th right interspace resembled pus. There were no pus cells, organisms or degenerated material.

Stool and urine—Nothing abnormal.

On fluoroscopic examination the diaphragm was raised on both the sides, more on the right. Movements were restricted on the right side.

Treatment and progress—A diagnosis of subdiaphragmatic abscess was made and the patient was put on crystalline penicillin sodium G, 1 lac units 8-hourly on 6-11-54. Her general condition improved and the liver gradually regressed.

On 18-11-54 penicillin was discontinued and aureomycin 250 mg. 6 hourly was started. In another four days the liver was not palpable and the patient was discharged on 23-11-54 in an apparently normal state of health.

The patient was readmitted on 2-3-55 to the surgical wards as a suspected case of subdiaphragmatic abscess. She was transferred to the medical side as a case of rightsided pleurisy with effusion on 13-3-55, on the evidence of P.A. view of the x-ray of the chest. This time she complained of progressive weakness, loss of appetite and weight, dyspnoea on exertion, slight cough without expectoration for 1½ months. She was pale, emaciated and weak. T—98·6°F, P/R—104/28 and B.P.—95/60 mm. of Hg.

The conjunctivae were pale and showed icteric tinge. On examination her apex beat was in the 5th left intercostal space just external to the left midclavicular line with increased cardiac duliness slightly to the left side.

The trachea was slightly displaced to the left side. Movements of the chest were diminished on the right lower half. Vocal fremitus diminished on both the sides in the lower half. There was stony dullness in the lower three spaces on the right side with absence of breath sounds. There were no adventitious sounds. Vocal resonance was diminished in lower half of right side.

The liver was not palpable.

Laboratory investigations:

Blood: W.B.C.—7,500/c.mm., neutrophils—61 per cent, lymphocytes—36 per cent, and eosinophils—3 per cent, R.B.C.—2·71 mill./c.mm., Hb.—50 per cent (7·5 g. per cent).

Pleural fluid was aspirated from both sides (aspiration done in the 6th space on the midaxillary line). It was haemorrhagic. There were no pus cells or organisms. Culture was sterile.

The liver function tests showed: van den Bergh—biphasic positive; Icteric index—30 units; Serum bilirubin—3 mg. per cent; Thymol turbidity—2 units; Alkaline phosphatase—30 units.

On fluoroscopy the diaphragm was raised and the movements on the right side were much limited. There was a dark opaque shadow mostly below the diaphragm and suspicion of pleural effusion which had dried up was also present.

Treatment and progress—The patient was put on streptomycin 1 g. on alternate days, P.A.S. 2 g. *q.i.d.* and isoniazid 50 mg. *t.d.s.* from 16-3-55 to 28-3-55. Her condition showed steady deterioration. The weakness increased, appetite became poorer and the patient became very listless.

On 29-3-55 the above treatment was discontinued and aureomycin 250 mg. 6-hourly was commenced supported by stimulants but without any good effect. The patient went progressively downhill and died on 30-3-55.

Autopsy report—The right pleura was adherent and there was slight effusion as well. The left pleural cavity showed only 4 oz. of blood-stained thin fluid. The lungs showed oedema. The liver was hugely enlarged extending upwards into the right thoracic cavity, and downwards well below the costal margin. There was a large abscess in the posterosuperior part of the right lobe which was closed by the diaphragm and very firmly adherent to the base of the right lung. The abscess cavity had irregular ragged walls and contained about 15 oz. of thick pus which was sterile on culture. Below the abscess, there was seen a round hydatid cyst containing thin, laminated gelatinous membranes. The left lobe showed necrosis of the parenchyma at the centre. The liver was adherent to all adjacant structures. Peritoneal cavity contained ½ pint of blood-tinged fluid but no pus. The intestines did not show any ulcers. Microscopic examination showed oedema of the lungs. In the liver the wall of the abscess cavity showed infiltration by plasma cells and mononuclears, and necrosis of the adjoining liver parenchyma. The other parts of the liver showed small focal necrosis, hyperplasia of Kupffer cells and dilatation of sinusoids. Other organs appeared normal.

Autopsy diagnosis—Amoebic abscess and hydatid cyst of the liver with pulmonary oedema.

Comments

Aspirated fluid from the pleural regions may be due to a contigual empyema or the needle aspirated from the subdiaphragmatic abscess.

The post-mortem diagnosis of amoebic abscess is not in keeping with the clinical diagnosis of subphrenic abscess which was also associated with hydatid cyst or infected hydatid cyst. Presence of hydatid cysts was never suspected in life.

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SIGNIFICANCE OF ANTIBODY TITRE OF A RANDOM POPULATION

Antibodies may arise in three different ways (1) normally in association with genetic development, (2) naturally with the stimuli of natural infections or other varieties of external stimuli, or, (3) artificially by immunisation with vaccines.

The normal antibodies are developed spontaneously by a purely physiological mechanism governed by genetic laws. The best known example of such normal antibodies are iso-haemagglutinins. With the exception of small quantities of iso-agglutinins and other antibodies passively transferred from the mother *in utero*, the newborn contains no antibodies and no globulins too. As the globulins develop gradually after birth, the iso-agglutinins and other antibodies also commence appearing in the blood. It has been variously estimated that human iso-agglutinins reach a maximum titre at an age between 5 and 10 years.

There cannot be any reasonable doubt about the genetic origin of the purely physiological antibodies such as the iso-haemagglutinins.[1] The regular presence of iso-agglutinins in human serum, in strict correlation with the inherited iso-agglutinogens, is a strong evidence in favour of such concontention. However, in addition to these *normal* iso-agglutinins, several others may appear as a consequence to antigenic stimuli of red blood corpuscles introduced during blood transfusion, unless the antigenic structure of the R.B.C. of the donor and that of the recipient were exactly alike. These newly developed antibodies have been known to be responsible for transfusion shocks produced at a subsequent transfusion. It is also possible, though very remotely, for heterogenetic antigens of the nature of Forssman's antigen to provoke development of anti-erythrocytic antibodies. Thus the iso-haemagglutinins can also arise as a result of external antigenic stimuli though the larger part of them is developed genetically.

In the same way, several antibacterial antibodies may also arise genetically just as the iso-haemagglutinins are developed. These normal antibodies also appear in the circulation along with the globulins. They increase in titre in course of years just as the normal iso-agglutinins do. Indeed this parallelism in the development of normal haemagglutinins and bacterial antibodies has been used as evidence for the spontaneous origin of both the normal and the naturally developed antibodies.[2] Nevertheless, even such a close correlation does not rule out the possibility that external antigenic stimuli may also be responsible for the development of several varieties of antitoxins and antibacterial antibodies.

There are obvious dissimilarities between true normal antibodies, which are formed independently of external antigenic stimuli and those antibodies which arise through external antigenic stimuli. The latter are generally immune antibodies, which are more or less responsible for immunity of the host against the antigens which develop these antibodies. The normal antibodies, however, may not play any part in immunity. For instance, the antibody to glanders in horses is not associated with an immunity to glanders.[3] There are other dissimilarities between true normal and immune antibodies. The latter show strict specificity and are generally more avid and thermostable[4].

The immune antibodies, which may be present in apparently normal individuals are developed by

[1] HIRSZFELD, L.—*Klin. Wchnschr.*, **11** : 950, 1932.

[2] FRIEDBERGER, E. AND GAJZAG, D.—*Ztsch. Immunitatsforsch*, **67** : 67, 1930.

[3] LAHIRI, D. C.—Lectures on applied Medical Bacteriology, 1st edition, 1955, p. 289. Published by the author, Calcutta.

[4] PRASEK, W.—*Ztschr. Immunitatsforsch*, **20** : 146, 1913.

the stimuli of the respective specific antigens. Statistical studies on the distribution of diphtheria[5] and scarlatinal[6] antitoxin in population and groups of individuals, exposed to infection in various degrees, leave no doubt about the fact that occult or overt infections play the major part in the development of these natural antitoxins. The staphylococcal antitoxin which is present in normal humans[7] seem to arise also in the same way. It was also shown by Hughes and Sawyer[8] that yellow-fever-virus-neutralising antibodies are frequently found in the serum of persons living in regions where the disease is prevalent, but are absent in individuals who had never been exposed to infection. These observations leave no doubt in one's mind about the nature of these antibodies. Though present in normal individuals, they are produced with the stimuli of occult or overt infections. In order to differentiate them from the truely normal antibodies, which arise genetically and may or may not be associated with immunity, these antibodies should be called natural antibodies.

It would be obvious from above observations that prevalence of natural antibody in a population may be used as a yardstick of the prevalence of a particular infection in a community[9, 10]. Presence of normal antibodies in the serum of a population would not, however, indicate prevalence of the corresponding infections in a community, because such normal antibodies would arise independently of the external antigenic stimuli of natural infections. Hence, before using the frequency and distribution of a particular variety of antibacterial antibody as a measure of frequency and distribution of the corresponding infection, it would be necessary to find out whether the particular antibody was genetic in origin or did arise from the stimuli of environmental infections.

Hence before using the antibody titres reported by Khanna and Singh[11] as indices of prevalence of typhus infections in that locality, it would be necessary to determine whether such antibodies are developed genetically or were produced through external antigenic stimuli. The methods of such differentiation would suggest themselves: (1) To test the quantity of a particular antibody in children and compare their average titre with that of adults and (2) to determine the distribution of the titre amongst different hygienic classes of population.

The artificial antibodies too, differ from both the true normal antibodies and the natural antibodies which develop with the stimuli of environmental infections. They are just reciprocal to the antigens contained in the vaccines and, hence, may be different from those which arise from nature. For instance, the antibodies which develop after T.A.B. inoculation consist of by far a larger part of 'H' agglutinins and proportionately smaller quantities of 'O' agglutinins. Even these small quantities of 'O' agglutinins disappear very much earlier than the 'H' agglutinins, chiefly due to their comparative lability. In the naturally immunised, however, it is the 'O' antibody titre which takes the lead, and it also remains in the circulation throughout the persistence of environmental stimuli. Perhaps the difference in duration of immunity following natural infection and that following artificial immunisation is also explained by the difference in nature of the natural antigenic stimuli and that of the vaccines used for artificial immunisation.

[5] ZINGHER, A.—*Am. J. Dis. Child.*, **25**: 592, 1923.
[6] *Idem*—*Am. J. Pub. Hlth.*, **14**: 955, 1924.
[7] RAMON, G. NELIS, P. AND RICHAU, R.—*Compt. rend. Soc. biol.*, **119**: 1070, 1935.
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[9] WILSON, G. S. AND MILES, A. A.—Topley and Wilson's Principles of Bacteriology and Immunity, Vol. 2, 3rd edition, 1946, p. 1083. Edward Arnold & Co., London.
[10] LAHIRI, D. C. AND MORE, V. Y.—*Indian M. Gaz.*, **87**: 448, 1952.
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CURRENT MEDICAL LITERATURE

Treatment of Hypertension

RAST AND ORGAIN (*Circulation*, **12**: 361, 1955) summarize in the following lines their observations on the use of hexamethonium in combination with hydralazine in the treatment of malignant hypertension:

Sixty-one patients with severe hypertensive vascular disease, including nine patients with malignant hypertension, were treated with combined hexamethonium-hydralazine over periods of from 5 to 22 months for an average of 10 months per patient.

In the majority (76 per cent) of these patients definite reduction in recumbent blood pressure (fall in mean recumbent blood pressure of 20 mm. Hg. or greater) was achieved and maintained throughout therapy, and approximately 40 per cent of the patients treated in the late follow-up period demonstrated "good" control of recumbent blood pressure (average recumbent pressure 160/110 or lower). No tendency for initial blood pressure reduction or control to be lost was observed.

When hydralazine was added to 31 patients who had been under treatment with hexamethonium alone for periods of 3 to 26 months (average 10 months), further reduction in mean blood pressure and more satisfactory control of recumbent blood pressure were achieved in the majority of instances.

The late addition of hydralazine to hexamethonium produced equally good eventual blood pressure reduction and control as did the initial combination of the two drugs; in the latter instance, however, better results during combined therapy were achieved earlier.

Improvement in retinopathy and in the electrocardiogram occurred in one-fifth of all patients during combined therapy, while little appreciable effect upon renal function or heart size was noted.

Vascular complications incident to the hypertensive process were not prevented by therapy. Seven deaths (11 per cent) occurred, only one of which was attributed to the drugs. Six nonfatal complications also appeared during treatment.

Late systemic reactions to hydralazine were observed in seven (11 per cent) patients; in one patient the illness simulated disseminated lupus erythematosus and necessitated corticotropin and cortisone therapy.

Combined hexamethonium-hydralazine therapy together with rigid dietary restriction of sodium constitutes at present an effective form of treatment for malignant hypertension and severe essential hypertension when renal function is good. The hazard of late systemic reactions to hydralazine limits the usefulness of this drug in the long-term therapy of hypertension.

Penicillin in Chronic Bronchitis and Bronchiectasis

MAY (*Brit. J. Tuberc. & Dis. Chest*, **49**: 166, 1955, Ref. *Practitioner*, **175**: 342, 1955) for the rational use of penicillin in chronic respiratory infection divides these infections into four groups, according to the sensitivity of the infecting organisms to penicillin: (i) Those below 0·05 unit per ml., e.g., the pneumococcus and haemolytic streptococcus. Here, procaine penicillin, 600,000 units daily for five days, is usually adequate. (ii) Those between 0·05 and 1 unit, e.g., partially resistant staphylococci. Here, crystalline penicillin, 1 mega unit twice or thrice daily, or penethamate hydriodide ('estopen'), 500,000 units twice daily, should provide adequate cover, but the possibility of a partially resistant staphylococcus becoming highly resistant must be borne in mind. (iii) Those between 1 and 5 units per ml., e.g. *H. influenzae*. For this group, penethamate hydriodide, 500,000 units four times daily, should be used. (iv) Those higher than 5 units per ml. Organisms with this level of resistance are unlikely to respond to any dose of any available penicillin preparation.

In general practice, where sensitivity tests are seldom feasible, reliance should 'be placed on the likely incidence of different pathogenic bacteria'. It is the author's experience that *H. influenzae* is present in the sputum in over 80 per cent of patients with chronic mucopurulent bronchitis without acute exacerbation. This figure is taken to indicate 'that the majority of such chronic infections would fail to respond to any form of penicillin other than intensive "estopen". As however, about 50 per cent of acute exacerbations of bronchitis or bronchiectasis are associated with heavy pneumococcal infection, these patients should respond satisfactorily to almost any penicillin therapy.

Cortisone vs. Aspirin in Rheumatoid Arthritis

The following is the summary of the second report by the Joint Committee of the M.R.C. and Nuffield Foundation:

A further report is made on 61 patients who were allocated at random to treatment with either cortisone (30 cases) or aspirin (31 cases) while they were still in the early stages of rheumatoid arthritis. In their second year of therapy treatment with one or other agent has been continuous, and "individualized" by the physician in charge of the patient to meet each patient's needs. At approximately the end of two years of treatment 58 of the original 61 patients have been reassessed clinically, submitted to some simple objective tests, had x-ray films taken of their hands and feet, and had their haemoglobin levels and blood sedimentation rates measured. In no respect do the two groups differ by more than might easily be due to chance, and in most respects they are distinguished more by their equalities than by their differences. At the end of two years, therefore, as previously reported at the end of one year, it appears that for practical purposes there has been remarkably little to choose between cortisone and aspirin in the management of this group of patients. (*Brit. M.J.*, **2**: 605, 1955).

Prednisone and Prednisolone in Rheumatoid Arthritis

HART AND OTHERS (*Lancet*, **2**: 998, 1955) write that in a short-term study prednisolone (metacortandracin) and prednisolone (metacortandrolone) proved in ¼-1/5 the dose more effective than cortisone in relieving the symptoms and reducing the signs of rheumatoid arthritis.

Of 14 patients 9 preferred either prednisone or prednisolone to cortisone, 5 were indifferent, and none favoured cortisone.

In each detailed assessment prednisone appeared as good as, or better than, cortisone, and in no single respect did cortisone prove superior.

Over-all improvement took place in 10 of the 14 cases on transferring from cortisone to prednisone, whereas 8 deteriorated somewhat on returning to cortisone.

Clinical and Metabolic Effects of Prednisone

NABARRO AND OTHERS (*Lancet*, **2** : 902, 1955) observed :

The clinical effects of prednisone (metacortandracin) (30-40 mg. daily) in 5 cases of lymphatic leukaemia, 2 cases of lymphoma, and 1 case of the Henoch-Schonlein syndrome. Metabolic studies were made on 5 of these patients and in 1 normal and 2 adrenalectomised subjects. The therapeutic activity of prednisone is about five times that of cortisone.

Studies of glucocorticoid activity in adrenalectomised subjects showed increased nitrogen excretion but little effect on blood-sugar. 2 patients developed steroid diabetes during prednisone treatment.

The sodium-retaining activity of prednisone is not increased in the same way as the therapeutic and glucocorticoid activities. Most patients are able to take prednisone (30-40 mg. daily) with a normal sodium intake.

Prednisone is active in causing suppression of the adrenal cortex.

Hydrocortisone Ointment in Skin Disease

GOLTZ (*Minnesota Med.*, **38** : 404, 1955) writes that ointments containing hydrocortisone were used in the treatment of 147 patients with a variety of inflammatory skin diseases. Results indicate that the preparation is of considerable value in chronic eczemas and in pruritus, but of little help in psoriasis, lichen planus, lupus erythematosus, etcetera.

Cortisone in Apoplectic Stroke

RUSSEK AND OTHERS (*J.A.M.A.*, **159** : 102, 1955) write that various attempts have been made to improve the cerebral circulation in patients with apoplectic stroke, in the hope of decreasing neurological residua. The uncertain responses with such methods have left no alternative to expectant therapy. Inasmuch as cortisone has been found of value in the rehabilitation of hemiplegic patients, through its action in enhancing motivation and promoting a sense of well-being, it was considered logical to make a trial of the drug for the acute cerebrovascular accident. Moreover, since local cerebral oedema is believed to be a contributory factor in the perpetuation of neurological signs, and since cortisone has been shown to retard the mesenchymal tissue response to various forms of trauma, additional benefit from cortisone seemed possible in this respect. With these objectives in mind, 35 cases of apoplectic stroke due to cerebral thrombosis or embolism were treated with this drug within 48 hours after the onset of symptoms. Cortisone produced striking effects in 21 of the 35 patients under this regimen, and remarkable neurological recovery had occurred in 27 patients by the end of the third week of cortisone administration.

Cortisone is a valuable addition to the therapy of acute cerebral thrombosis or embolism. The drug appears to offer a dynamic approach to limiting the assault of a disease that, until now, has been viewed, at best, with expectancy, and at worst, with defeatism. No significant untoward effects from cortisone were noted in this study.

Hetrazan in Tropical Eosinophilia

GANATRA AND LEWIS (*Indian J. M. Sc.*, **9** : 672, 1955) write :

Hetrazan in a dose of 13 mg. per Kg. was administered for four days in 13 consecutive cases of tropical eosinophilia. The results of this group are compared with those obtained in 13 consecutive cases treated with 0·26 g. of carbarsone given twice daily for 10 days.

The clinical results with hetrazan compare well with those obtained with carbarsone. The fall in the total eosinophil counts was quicker with hetrazan and an early temporary exacerbation of symptoms was noted more frequently.

Chlorpromazine in the Management of Tetanus

COLE AND ROBERTSON (*Lancet*, **2** : 1063, 1955) write from the experience of six cases that the combination of chlorpromazine with phenobarbitone sodium in adults, and chloral in children, controlled tetanic spasms for eight to twelve hours, but not for longer. The patients' anxiety—a feature in tetanus—was replaced by euphoria.

Chlorpromazine

COHEN AND ARCHER (*J.A.M.A.*, **159** : 99, 1955) in dealing with liver function and hepatic complications in patients receiving chlorpromazine write that jaundice is an infrequent complication of chlorpromazine [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] therapy and is believed to be an expression of individual drug idiosyncrasy. The jaundice appears to be due to obstruction within the intrahepatic bile passages, hepatocellular function remaining unimpaired. Preliminary investigation suggests that under ordinary circumstances chlorpromazine is not hepatotoxic and can be administered over prolonged periods of time without undue risk.

Anti-thyroid Effect of Phenylbutazone

MORGANS AND OTHERS (*Lancet*, **2** : 164, 1955) report that a patient developed a goitre after taking phenylbutazone for 15 months. The goitre disappeared after stopping the drug, and returned within a month after restarting. The drug was stopped a second time, and again the goitre disappeared.

Radio-iodine tests showed that in this and another patient there was a well-marked block in the synthesis of organic iodine compounds within the thyroid. No such block was found in two patients who were taking less than 400 mg. of phenylbutazone daily; and none occurred in 3 subjects given single doses of 200 mg. Observations on the original case suggested that the block became more complete the longer the patient had been taking the drug.

Optic Neuritis After Isoniazid Therapy

KEEPING AND SEARLE (*Lancet*, **2**: 278, 1955) in reporting a case of optic neuritis in an Indian after isoniazid therapy observe that the development of optic neuritis 25 days after the exhibition of isoniazid, with subsequent improvement despite late withdrawal of the drug, supports the contention of Sutton and Beattie that isoniazid may be a toxic agent. As the complication is fortunately rare, an idiosyncrasy may be the precipitating factor.

Psychotic Reactions from Cortisone

KELLEHER AND SNEDDON (*Practitioner*, **175**: 300, 1955) report two cases which illustrate the organic and the affective psychotic reactions produced by corticotrophin and cortisone.

The organic psychosis conforms to the usual pattern of a toxic psychosis and subsides spontaneously when the hormones are stopped. It may be controlled by sedation.

The affective type occurs in a predisposed person and the form of the psychosis is determined by the prepsychotic personality. It often continues when hormone therapy has been stopped and electroconvulsive therapy, which is usually effective, may be necessary.

Streptomycin as a Cause of False-Positive Benedict Reaction

NEUBERG (*Am. J. Clin. Path.*, **24**: 245, 1954, Ref. *Indian J. M. Sc.*, **9**: 192, 1955) during the course of parenteral administration of streptomycin sulfate to patients with a variety of diseases, noted that their urine samples occasionally showed a 1 to 2 plus Benedict reaction (light green to yellow green), 3 to 8 hours after injection of 1-gram doses. The urine of these patients was negative to the Benedict reaction prior to therapy. Their blood sugar levels were normal, and they had no demonstrable renal disease. They did not receive concurrent para-aminosalicylic acid or isonicotinic hydrazide therapy, both of which agents are known to produce false-positive tests with Benedict reagent.

In order to determine systematically the effect of administration of streptomycin on the appearance of false-positive glucose reactions in urine, varying amounts of streptomycin sulfate were added to 5 ml. of Benedict reagent, and boiled for 5 to 8 minutes. Positive Benedict reactions were obtained in greater strengths as the concentration of the drug was increased. In view of the Benedict reactions obtained with streptomycin itself, the author concludes that the metabolic products of streptomycin, as well as the parent compound, are capable of producing false-positive Benedict reactions. On alkaline hydrolysis, such as occurs during the boiling of Benedict reagent, streptomycin is known to yield streptidine, streptobiose, and maltol, the last two being known as reducing agents.

Hypofibrinogenaemia and Postpartum Haemorrhage

SAWITSKY AND PLOTKIN (*N. Y. J. Med.*, **55**: 1153, 1955, Ref. *J.A.M.A.*, **158**: 699, 1955) report on the occurrence of postpartum haemorrhage associated with hypofibrinogenaemia in 16 women. Premature detachment of the placenta was an associated condition in 14 of these patients, resulting in a dead foetus in 3; one woman carried a dead foetus without premature detachment of the placenta. One patient had acute hepatitis and 10 had eclampsia. The hypofibrinogenaemia was present at the height of the haemorrhagic diathesis, which became apparent clinically by constant bleeding from the uterus and birth canal with inability of the blood to clot. The serum of seven patients showed transient but pronounced fibrinolytic activity. Transient mild thrombocytopenia was noted in nine patients. The Schneider fibrin titer assay, a simple coagulation dilution series of whole blood, was performed in all patients and confirmed the suspected diagnosis of fibrinogenopenia; the highest dilution in which visible coagulation of fibrin occurred served as fibrin titer. Intravenous fibrinogen administration, the most direct means of restoring the blood fibrinogen level to normal, was used and promptly reestablished the integrity of the clotting mechanism. Surgery should not be attempted without the simultaneous use of fibrinogen, once the diagnosis has been established. The removal of the uterus and its contents does not insure rapid correction of the coagulation defect. Additional administration of fibrinogen is frequently necessary. The diagnosis of fibrinogenopenia must be suspected in the presence of premature separation of the placenta, pronounced isoimmunization of a pregnant woman, presence of a dead foetus *in utero*, severe hepatic damage, severe toxaemia of pregnancy, amniotic fluid embolism, and surgical shock. The exact cause of the coagulation defect is not clear, although there is little doubt that the high concentration of thromboplastic substance in the placenta and decidua is of paramount importance.

Gamma Globulin in the Treatment of Measles Encephalitis

GREENBERG AND OTHERS (*J. Pediat.*, **46**: 648, 1955, Ref. *J.A.M.A.*, **159**: 146, 1955) write that theoretically it is improbable that a specific antiserum will be effective in treatment unless given early in the course of the disease, when the causative organism or its toxin is still circulating in the blood. Once the virus has become attached to the cell it cannot be neutralized by antibody. In measles, the median day of onset of the complicating encephalitis occurs about six days after the beginning of the rash. By then the upper respiratory discharges contain no virus and the antibody titer of the serum is fairly high. It is difficult to see how the use of gamma globulin could affect the course of the complications or determine their outcome. Of 159 patients with measles encephalitis under the age of 15 years, 51 were treated with gamma globulin and 108 were not. About 25 per cent of the children died or developed permanent sequelae, and the percentage was the same in the two groups. No significant differences in results between the treated and the untreated were found when comparisons were made by age groups or by amount of treatment or by severity. The authors conclude that gamma globulin has no value in the treatment of measles encephalitis.

CURRENT TOPIC

THE ORGANIZATION OF PUBLIC HEALTH SERVICE IN THE USSR

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Health protection of the population is one of the chief concerns of the Soviet State. Public health service, like other branches of the country's economy is conducted on the basis of the general state plans which are, as is known, drawn up for a five-year period. It is on the basis of the national economic five-year plans that the annual plans of the development of public health service are elaborated. They determine the number of hospital accommodations, the number of medical institutions to be established, the number of doctors and other specialists to be graduated from the colleges, the introduction of sanitary measures, the output of medical apparatus, the reaserch work for the year, etc.

The characteristic features of Soviet health service are that it is available free of charge to all citizens, has a preventive trend, and that its entire system is unified.

The work of the numerous medical and prophylactic institutions is coordinated and directed by the USSR Ministry of Public Health. Besides the medical institutions which are directly responsible to the USSR Ministry of Public Health and its local organs certain other ministries have a so-called departmental network of medical services (for instance, medical institutions which serve railwaymen, workers of the meat and dairy industry, etc.). The departmental medical institutions are not under the direct supervision of nor are they financed by the organs of public health service, nevertheless they work on the same general principles as the entire Soviet public health service and are methodologically supervised by the Ministry of Public Health and its organs.

Health protection of the population in the USSR is conducted on a scientific basis. There exists a considerable number of research institutes in the country.

The Academy of Medical Sciences has been functioning for ten years now in the USSR. It includes the most important medical research institutions in the country.

Medical personnel are trained in medical colleges and medical secondary schools working under the supervision of the USSR Ministry of Public Health and the ministries of public health of the Union republics. The system of public health service also includes a network of pharmaceutical institutions and an industry that puts out medicines and medical equipment.

1. Medical Service to the Urban Population

The urban population of the USSR receives medical assistance free of charge under the territorial and the industrial principles.

That means that besides the medical and prophylactic institutions which serve the entire population of a given city regardless of the patient's occupation or place of work, there are special medical institutions (medical departments) at the larger industrial enterprises which serve only the workers of that enterprise.

If the given enterprise is too small to have a medical department, the local hospitals appoint from among their staffs so-called factory doctors to offer medical help to the workers. The factory doctors of the medical departments or local hospitals study the working conditions at the enterprise, help to improve them, and also attend to patients in the polyclinic and the hospital.

Every town has a considerable number of different medical and preventive institutions. In large cities they are even too numerous to count. In order to get an idea about the most wide-spread types of medical and preventive organizations let us take the small industrial town Likino-Dulevo of the Moscow Region for example.

This town has a hospital with a therapeutic, surgical, gynaecological, obstetrics and pediatrics departments. There are therapeutists, surgeons, obstetricians, gynaecologists, stomatologists, otolaryngologists, ophthalmologists, neuropathologists, and pediatrists in the clinic to attend to patients. Besides that there is a hospital for patients with infectious diseases and an anti-tuberculosis dispensary with a hospital and a polyclinical department in this town.

There is also an anti-epidemic station, several nurseries, a children's sanatorium for consumptives, and a night prophylactorium for adults. The polyclinic has a first-aid station with a fleet of ambulances for carrying patients who need immediate medical aid.

The town is divided into five districts, to each of which a therapeutist and a pediatrist are attached.

Besides that the municipal hospital has seven factory therapeutists who serve the workers of the Likino-Dulevo industrial enterprises. There is also a doctor for adolescents who attends to young workers under eighteen years of age while in the children's department, besides other medical personnel, there are 3 school doctors and 2 nursery doctors who attend to children in the schools and nurseries.

The hospitals of the town can accommodate 280 patients (not counting the children's sanatorium and the night prophylactorium).

The factory therapeutists make a daily round in the hospital, receive patients in the polyclinic, and visit their factory shops where they attend to problems of the rational placement of workers, make recommendations to the management of the industrial enterprise concerning methods of improving working conditions, subject separate groups of workers to medical examinations, spread sanitary knowledge, etc.

The district therapeutists also work every day both in the hospital and the polyclinic but while the factory doctors visit their shops the district doctors attend to patients at home.

The district pediatrists conduct their work on similar lines.

The whole staff of municipal doctors conducts comprehensive preventive work. Every year young workers, school-children, and infants in nurseries are examined by specialists of the chief medical professions. Infants under one year of age are examined once a month. Pregnant women are also examined by obstetricians and gynaecologists 5-6 times during pregnancy. Separate occupational groups of industrial workers are also subjected to preventive examinations.

All patients suffering from ulcer, heart disease, high blood pressure, anacidic gastritis, and certain other diseases are kept on dispensary record. Once every 2-3 months these patients are summoned to the doctor for an examination. An individual plan of treatment is prescribed to every one of them. Depending upon the stage and nature of the disease different combined methods of treatment are employed (hospitalization, night prophylactorium, sanatorium treatment, diet, change of occupation, dispensary treatment, additional vacation, etc.).

This active and complex treatment makes it possible even in cases of serious and incurable diseases to preserve the life and working capacity of the patient for a long time.

Dispensary treatment of workers at industrial enterprises possessing their own medical departments is practised on a particularly broad scale. In order to get an idea of what a medical department at an industrial enterprise is like we will briefly describe this institution at the Podolsk Machinery Works.

This plant was built by the Singer Company at the end of the 19th century. It puts out sewing machines. Today the factory has been expanded and completely reconstructed so that practically nothing has remained of the old Singer enterprise. Before the Revolution there was one doctor and four doctor's assistants working at the plant. They offered only outpatient treatment to the workers. At present there is a large combined medical prophylactic department working at the factory which has a hospital accommodating 100 patients and a polyclinic with a staff of doctors of all specialities. The department has three medical posts in the factory shops, a dietetic kitchen, and several nurseries. The workers of this enterprise are also served by the municipal hospitals in case of illness. The budget of the medical department continues to grow and now exceeds one million rubles a year.

The big preventive work conducted by the doctors of the medical department, the improvement of working conditions, and the participation of large numbers of workers in physical training and sports have helped to improve their health and reduce the incidence of disease and temporary disability. Suffice it to say that as compared with the prewar period the incidence of disease of the plant has been reduced by half.

2. Protecting the Health of the Rural Population

Medical service to the rural population is organized on the same basic principles as Soviet health protection in general, but the structure of the network of medical and prophylactic institutions is somewhat different.

The primary medical unit in the village is the medical aid and obstetrics post. Such posts are set up in all large villages and are usually staffed with a doctor's assistant (a medical worker with secondary medical school training) and a midwife. The doctor's assistant attends to outpatients and conducts preventive work while the midwife takes care of the pregnant women. If there is a collective-farm lying-in hospital attached to the post then the midwife also assists in child-birth.

There is a local hospital with accommodation for 15-20 patients to every 5-10 medical posts. It is staffed with one or two doctors (besides the dentist) and the necessary number of attendants. The hospital is usually located in a large village. All the medical workers of these posts work under the supervision of the district doctor. There is always a hospital in the district centre where specialized medical help is offered (hospitalization and out-patient treatment).

The district hospital is staffed with doctors of the basic specialities (therapeutist, surgeon, obstetrician and gynaecologist, pediatrist, oculist, otolaryngologist, neuropathologist, a specialist in skin and venereal diseases, a TB specialist, etc.). The district hospital is the organizational and methodological centre of the district medical institutions.

The rural population also gets help from the regional hospital. This is a large institution with highly-qualified doctors of all specialities. Such hospitals are usually located in regional centres and often serve as a clinical base for medical colleges.

As an illustration we will describe the network of medical institutions of a typical rural district—the Spassky District of Ryazan Region. It has a district hospital with accommodation for 125 patients, a sanitary epidemiological station, five rural hospitals for 10-25 patients each, 39 medical and obstetrics posts, and five collective-farm lying-in hospitals. Medical and obstetrics posts are to be found in all the larger villages. The distance from the post to the local hospital is from 4 to 12 kilometres. Every rural hospital has a doctor and a dentist. The hospital accommodates general patients and lying-in women. All hospital surgical assistance and also specialized medical help are provided in the district centre. Like the medical and prophylactic institutions in the towns the rural and district hospitals apply the dispensary method in serving the population.

In the rural districts the dispensary service covers patients of the same categories as in the towns and also farm-machine operators of the machine and tractor stations and certain groups of collective farmers. Children and pregnant women undergo prophylactic examination just as frequently as in the towns.

3. Sanitary Epidemiological Service

Besides the wide network of medical institutions sanitary epidemiological service has been organized for the introduction of preventive measures and combating infectious diseases.

Every urban and rural district has its sanitary epidemiological station. The staff of these stations includes sanitary inspectors of different specialities (municipal, food, industrial hygiene, etc.) and epidemiologists. The station usually has a laboratory where bacteriological and chemical researches are conducted on the assignment of doctors. The doctors of the sanitary epidemiological station are invested with great authority by the state. They can lay down sanitary rules which all industrial institutions and enterprises are obliged to obey. The head doctor of the sanitary epidemiological station can, if necessary, stop the work of a given enterprise (food factories, shops, etc.) if the latter breaks sanitary rules, and fine its manager.

The sanitary organs participate in discussing the building plans of new industrial enterprises, apartment houses, etc. The plans cannot be realized without their sanction. The sanitary organs always participate in the examination of the finished building before it is put into service in order to see that the rules had been observed. Special attention is paid to the building of diverse communal and public service establishments, the water supply, ventilation, sewerage, landscape gardening, etc.

Besides the district sanitary epidemiological stations there also exist municipal, regional, and republican stations. The entire network is supervised by the Central Sanitary Anti-epidemic Administration of the USSR Ministry of Public Health. The numerous epidemiological and microbiology institutions are the scientific and methodological base of the sanitary service.

* * * * *

A very important role in the general sanitary work among the population is played by sanatoria and rest homes.

Children's sanatoria are usually under the control of public health organs and accommodation there is free of charge.

Besides the USSR Ministry of Public Health, the trade unions, industrial ministries and departments also maintain sanatoria and holiday homes.

Accommodation tickets to them are given to the population through the trade unions either free of charge or at a discount of 70 per cent, or they may be bought at the health resort offices at their full price. Medical work in the sanatoria, no matter to what organizations they belong, is conducted under the general supervision of the public health organs. Scientific methods of treatment at the health resorts are elaborated by the health resort research institutions which work under the control of public health organs.

* * * * *

All the medical and sanitary institutions in the USSR are supervised by the public health departments of the local Soviets of Working People's Deputies.

In every district, both in town and country, there is a public health department which is a part of the Executive Committee of the District Soviet of Working People's Deputies. The Union Republics have their own Ministries of Public Health. All the work of protecting the health of the population is headed by the Ministry of Public Health of the USSR.

NOTES AND NEWS

Leprosy Menace Can Be Ended

The Executive Board of W.H.O. has decided that the time was ripe for large-scale campaigns against leprosy in every country affected by the disease.

According to this Board, sulphones, synthetic drugs first tried out during World War II, bring about considerable improvement, if not complete cure, after one or two years' treatment.

Because lepers are no longer treated as outcasts and because of growing confidence in the new drugs, more and more sufferers have been coming forward for treatment. A W.H.O. report has estimated the number of lepers as 10 or 12 million.

The W.H.O. Expert Committee on Leprosy declared in 1952 that it is a myth that leprosy is highly contagious.

Women suffering from leprosy can give birth to perfectly healthy children and the risks of contracting leprosy are infinitely smaller than those associated with tuberculosis.

The Committee stressed the futility and even the danger of measures for the compulsory isolation of lepers. There should be segregation only in cases presenting a real danger of infection.

The Nutrition Society

The following programme has been arranged for the symposium to be held at the London Hospital Medical College, Turner Street, E. 1. on March 10, 1956, on DIET AND ANAEMIA under the Chairmanship of Professor Sir Stanley Davidson (Edinburgh).

Dr. J. R. Evans (London) will speak on the absorption of vitamin B_{12} in conditions of anaemia; Dr. P. B. B. Gatenby (Dublin) on the anaemias of pregnancy in Dublin; Dr. G. H. Spray (Oxford) on the role of pteroyl glutamic acid and related compounds in macrocytic anaemia; Dr. G. R. Wadsworth and Professor B. S. Platt, C.M.G. (London) on zymotic and other factors in the development of anaemia; Dr. F. Wokes (King's Langley) on anaemia and vitamin B_{12} dietary deficiency; Professor A. W. Woodruff (London) on anaemia associated with malnurition in the tropics.

B. C. G. Day

"B.C.G. Day" will be celebrated this year on the 20th February, 1956. The Director General of Health Services has arranged a programme which is to be followed by the health departments of all states. The State/Territorial and Local Branches of the Indian Medical Association have been requested to co-operate with the health departments in this celebration.

Certificates Issued by Medical Practitioners

The Registrar, West Bengal Medical Council, in a letter to the Indian Medical Association pointed out that on occasions, persons who are ill go to registered medical practitioners for treatment and medical certificates. As the patient is unknown to the doctor, these certificates are sometimes issued in the name of a person other than the patient who wants to utilise it for his own purpose.

To prevent this, it was suggested that provisions should be made in the All India Code of Medical Ethics requiring *registered medical practitioners* to note down the address and two identification marks, if possible, and also *to have their signature or thumb impressions on the medical certificates issued by them.*

The Indian Medical Association's directive in the connection is that "for proper identification either the signature or the thumb impression should be enough and all State branches were to be requested to take up this question with their respective State Medical Councils to impress upon the necessity of incorporating this warning in the ethical rules."

Symposium on Antibiotics

The Council of Scientific and Industrial Research (Biochemical Research Committee), Mysore have proposed to hold a symposium on "Antibiotics—their production, utilisation and mode of action" at Pimpri towards the end of March, 1956, so that workers in this field could meet for a general discussion and exchange of news. The scope of the symposium will be as follows :

I. Production and Technology :
   (1) Screening of soils and plants for new antibiotics.
   (2) Mutation of antibiotic-producing organisms.
   (3) Production methods : Fermentation technique; role of precursors; use of indigenous materials for growth media; purification; packaging and dispensing, etc.
   (4) By-products.
   (5) Assay methods.

II. Chemistry and Biosynthesis.

III. Mechanism of Action :
   Effects on enzyme systems of the host and the parasite; production of resistant strains; etc.

IV. Applications :
   (1) Therapeutic uses and hazards.
   (2) Synergism among antibiotics.
   (3) Uses in animal and plant nutrition.
   (4) Uses in experimental techniques and in process control such as canning.

Anyone wishing to take part in the symposium should send his contribution with an abstract to the Steering Committee for the Symposium, Department of Chemical Technology, University of Bombay, Matunga Road, Bombay-19. Abstracts of papers received will be printed and circulated in advance for the information of all participants and others attending the symposium.

Annual Meeting of the British Medical Association

The Council of the British Medical Association has extended a cordial invitation to the Indian Medical Association to appoint a delegate to attend its 124th annual meeting which will be held at Brighton from July 9th to 13th, 1956. The annual meeting will include plenary scientific sessions and meetings of scientific sections, in addition to various social and other functions.

The appointed delegate will be a guest of the British Medical Association during the meetings. The B.M.A. hopes to arrange private accommodation for all overseas guests but it is regretted that it cannot defray any part of the travelling expenses of delegates.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Entamoeba histolytica Infection

SIR,—Kindly refer to the paper of (Miss) Mathew, Singh and Misra (*J. Indian M. A.*, **26** : 13, 1956). They have done well in reporting the correct incidence (3·8 per cent) of *Ent. histolytica* infection after careful examination of stools of 503 patients of Lucknow. There seems to be an erroneous impression at present that the incidence of *Ent. histolytica* infection in the various parts of India is very high. There are certain faults and fallacies in the examination of stools for *Ent. histolytica* and I am constrained to opine that certain authors reporting high incidence have based their reports on unreliable stool reports. The authors (Miss Mathew *et al*) have also correctly stated that culture of stools for *Ent. histolytica* cannot be relied upon.

The examination of stools for cysts of *Ent. histolytica* is a very laborious and painstaking examination. Further, it is essential that the person doing it should have some training under an expert protozoologist in the recognition of cysts of various protozoa and flagellates. It is fact that the young graduate soon after he qualifies is least competent to recognise the various cysts and from personal knowledge I can say that most papers published on the incidence of *Entamoeba histolytica* infection have for their data the results given by raw graduates untrained in protozoology or laboratory assistants employed to work in the clinical side room of wards. This practice prevails in most teaching hospitals. One very often finds that such an untrained protozoologist only reports cysts of *Ent. histolytica* and not the various other cysts that he comes across, clearly indicating that he is not familiar with them and it is very easy for such a person to mistake nonpathogenic cysts for the cysts of *Ent. histolytica*. This accounts for the high incidence of *Ent. histolytica* reported by them. Chaudhuri and Rai Chaudhuri (1946) from the School of Tropical Medicine after examining the stools of 9,015 cases have reported an incidence of 8·8 per cent. Das Gupta (1944) found an incidence of 10·87 per cent. These are very reliable pieces of work. The incidence of *Ent. histolytica* in the humid climate of Bengal is expected to be much higher than in the other parts of India. It is, therefore, very necessary that when a paper about the incidence of the disease is published the author has satisfied himself that the examination of stools has been done by a trained protozoologist and that necessary time and care has been given to the examination of stools.

I will, however, suggest that if the authors had adopted the Zinc Sulphate concentration technique of Faust, the incidence might have been slightly greater. Working in South Punjab, I have found the incidence of *Ent. histolytica* by examination of smear in saline and in iodine to be 2·85 per cent and by the technique of Faust to be 4·35 per cent. The total number of stools that were examined from January to December during 1955 being 1676. There is, however, great need for study

to find out the correct incidence of *Entamoeba histolytica* infection in the various parts of India. I am etc.

Karnal. T. N. MATHUR,
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Government of Punjab.

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Village Medical Practice

SIR,—At a reception given in his honour by the President, Indian Medical Council at Bombay, Dr. B. C. Roy, Chief Minister and the renowned physician of West Bengal, made a fervent appeal to the medical profession to go to the villages, and bring medical relief within the reach of the villagers. He noted that the nobility of the profession demanded that medical practitioner "should" go to the villagers for their relief and the Government "should" arrange for an emolument "not a luxurious one" to those medical practitioners serving in rural areas which would be sufficient to meet their family and social obligations. He was rather grieved at the dilemma that in our country the bulk of the doctors live in cities whereas the bulk of the people live in the villages.

But men like my humble self, practising in the rural areas for over thirtyfive years, know well what medical practice in the rural areas means. A newly graduated young doctor with every hope for future comes to the villages and finds himself instantly in endless misery. He finds poor customers unable to afford his normal fees and provide for the expenses of diet and medicine required. In the rainy season communications are practically cut off in the village areas and he has to move over knee-deep mud, sometimes to cross the streams and rivulets with a loin cloth. He finds his field well captured by "quacks" everywhere; a tenacious doctor after waging a bitter struggle finds himself lost for want of medical equipment which as an individual he cannot provide for. He cannot arrange for his children's education nor can he supply adequate maintenance to his family; as such he is compelled to give up his practice in rural areas and falls back on service or is allured to urban areas to earn better livelihood.

It has been suggested times without number that a subsidy to the profession is primarily necessary for medical equipment and a monthly grant of, say, Rs. 200/- only over a period of 3 years at least may enable the conrageous practitioners to stand well and endure. Would the authorities concerned see that the bulk of their efforts are put into this line. I am etc.

Ghatal, JATISH GHOSH,
Midnapur. *Vice-President,*
I.M.A., Bengal Provincial Branch.

Handicaps of the Qualified Medical Practitioner

SIR,—The plight of the qualified practitioner is hardly enviable. He is exhorted by the political soapbox orators to forget his money-motive and to be only a healer with a missionary self-abnegation without, of course, expecting any guarantee for reasonable income or facilities for himself and his dependants. He must pay heavy rents for his clinic as well as for his residence. There is no relief for him from the heavy educational expenses of his children. He must buy the necessities of life at prevalent high prices. His hours of work are long and tedious and those of rest are short and uncertain. He is, perforce, regularly irregular in his meal timings due to the peculiar nature of his duties. The "emergencies" sometimes snatch his very meals away. His sleep, rarely adequate, is disturbed by night-calls. In the evenings when most of the people are relaxing or amusing he is sweating away on his patients. Infections and contagions are lurking around him ready to pounce on him when he is a little off the guard.

Then there is the quack with his dirty syringe and dirtier methods to do him down. He thrives on the illiteracy of the public and gullibility of the masses. This self-styled "doctor" has had no expense on medical education (because he has had none) and therefore has no standards. His stake is little and harvest rich. Having no ethics he has no inhibitions. He uses the press and the city urinals for the advertisement of himself and his wares. The tout, the public buses and private vans carry his hoardings boosting him to the public everywhere. He goes about puncturing his docile victims with his filthy hypodermics. He keeps filling their stomach with doubtful pills and potions and, incidentally, his own pockets with the sweat of their brows. He does all those unlawful things and many others—but the Custodians of Law conveniently blink at him. The arm of Law is too short for him but is long and strong enough for the qualified practitioner who is being squeezed to the choking point by Sales-Tax, Income-Tax, Shops Act, Nursing Homes Act and the Pathological Laboratories Act. The quack is in a privileged position: he enjoys all the freedoms under the constitution and several besides. And, the qualified practitioner still survives. What a wonder! I am etc.

74-F, Kamlanagar, A. R. SETHI, M.B.B.S.,
Delhi-6.

REVIEWS

Antibiotics Annual, 1954-1955—Edited by Henry Welch and Felix Marti-ibanez sponsored by U. S. Department of Health, Education and Welfare, Food and Drug Administration, Division of Antibiotics. Pages 1154. February 1955. Published by Medical Encyclopoedia Inc. N.Y., U.S.A. Price not stated.

This volume incorporates the proceedings of the second annual symposium on antibiotics. The monograph covers interesting grounds regarding the "older" antibiotics as well as several newer ones discussed by 172 workers representing 35 nations of the world.

The number of antibiotics has increased and is increasing at such a rapid stride that it is very difficult to know each one of them in its proper perspective. The publication of such a volume, therefore, will be of immense benefit to laboratory men and practitioners.

The field of antibiotics mainly as antibacterial ones is being gradually extended. The common fungal infections like moniliasis which are precipitated by the prolonged administration of the broad spectrum antibiotics, have been a problem to clinical therapeuticians. Fungicidin (Nystatin), Fungichromin and Fungichromatin represent agents found effective in these conditions.

Not only antifungal, but also highly potent antiprotozoal substances like Anisomycin and Puromycin have been developed. New antibiotics isolated from actinomycetes cultures have exhibited tumour suppressing activity which is unrelated to their antimicrobial action. Such a finding has the potentialities of the future discovery of powerful antitumour substances.

The use of antibiotics as a general growth stimulating factor will, it appears, be extended to all the fields in biology, botany, animal husbandry, human nutrition, etc.

The symposium also extends the observations of simultaneous administration of antibiotics with cortical hormones especially in fulminating infections resulting in a rapid and striking clinical improvement with lessened systemic toxicity.

Reference to the introduction of several new antibiotics (besides those already referred to) like Spiramycin, Etamycin, Pleomycin, Celesticetin, P.A. 105 etc.; and newer orally administrable potent penicillin compounds like 'Benethamine' and 'Hydrabamine' penicillin will be of much interest to those concerned with antibiotic therapy.

The book has been well reproduced and is full of relevant references. The author and subject indices will be of much use to the busy reader.

Antimicrobial Therapy in Medical Practice—By Harrison F. Flippin, M.D., F.A.C.P. and George M. Eisenberg, D.SC. F.A. Davis Company; Philadelphia, Pennsylvania, U.S.A., 1955. 284 pages. Price Rs. 25/- ($5·00).

Ever since man discovered microbes of different types as the principal causes of various diseases, the hunt has been going on. Extensive research has been carried on to find therapeutic substances for antimicrobial treatment—culminating in the discovery and subsequent use of various antibiotics extensively in the present days. However, the spectacular increase in the number of antimicrobic compounds, resulting from the competitive efforts of the pharmaceutical industry in its search for more effective and less toxic agents, makes it wellnigh impossible for a busy practitioner to evaluate properly the available antimicrobial remedies. But we must know the indications for them and their manner of use, as well as the principles that underlie the actions of the various antimicrobial remedies, in order to be able to make the most effective use of these weapons which, like all potent weapons, can do serious harm with improper use or in unskilled hands. With a view to furnish a simple guide for the busy practitioner towards intelligent use of our antimicrobial allies, the authors have endeavoured to present data giving the fundamental principles governing this type of therapy, in accordance with the present state of our knowledge. The subject matter has been well scanned, effectively sifted and ably presented for the general practitioner and the student to help them to feel their way with safety and assurance —through the present-day maze of information—to safer and better utilization of the antimicrobial agents for therapeutic purposes.

OBITUARY

Dr. Rajeshwar Prasad

Dr. Rajeshwar Prasad, a stalwart of the Indian Medical Association died at Arrah on 28 December 1955 at the age of 75 years.

He was born on 1 July 1880. He joined the Provincial Medical Service on 6 December 1906 and retired as Civil Surgeon in April 1933. He earned a great popularity amongst his patients and his associates in service Surgery was his favourite subject.

DR. RAJESHWAR PRASAD

He was the first hony. secretary of the Patna Medical Association and the first president of the Bihar State Branch of I.M.A. He presided over the scientific session of the All-India Medical Conference in 1952. He attended the Jaipur Session of the All-India Medical Conference, 1955, as a member of the Working Committee.

He led a simple and upright life. His contribution to the I.M.A. was of immense value. His death is mourned by the members of the medical profession all over the country.

SUPPLEMENT
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XV MAHARASHTRA AND KARNATAK PROVINCIAL MEDICAL CONFERENCE, JALGAON (E.K.)

The 15th Maharashtra and Karnatak Provincial Medical Conference held its session at Jalgaon on 4-6 November, 1955. About 200 delegates and visitors attended the conference. Dr. S. S. Mhalas was the Chairman of the Reception Committee. Dr. G. V. Joshi of Hubli presided over the Conference. Dr. V. N. Shirodkar of Bombay inaugurated the Conference. An exhibition was organised and this was opened by Dr. B. B. Kirtana. In the scientific session, Symposia on Sterility and Peptic Ulcer and other subjects were introduced.

Dr. V. N. Shirodkar who inaugurated the Conference, in his speech described the present condition of the medical profession in India. He suggested to increase the medical facilities in the rural areas. He refuted that doctors were unwilling to work in the villages, given adequate remuneration, living quarters, mobile vans etc. He also pointed out that the minister of health must be a medical man.

Dr. S. S. Mhalas, the Chairman of the Reception Committee accorded a hearty welcome to the delegates and visitors. In course of his speech, he described in short the history of Jalgaon and the district of East Khandesh. He referred to the two important diseases viz. Leprosy and Tuberculosis which were predominant in the district and stressed the need of adequate measures to be taken by both the medical profession and the local authorities. He said that the united efforts of the profession directed towards the achievement of better health and to the eradication of diseases would succeed and result in the proximate and ultimate establishment of valued status to the profession in the public life of our country.

Dr. G. V. Joshi in his presidential address touched on some interesting points regarding the importance of joining the I.M.A. by the medical profession, Systems of Medicine, University Examinations, Modern Advances in our Science, The Second Five Year Plan and Importance of the Socialised Medicine. In course of his address, he said,

"We are at present, passing through a critical period when our science is advancing fast and we have also to adjust ourselves to a society which is rapidly veering round to the acceptance of a new ideology. I consider it as the prime duty of this Association to be prepared in good time with views and plans which are the result of mature deliberations to properly guide its members.

Modern advances have added to our knowledge of normal physiological functions and have thereby given us greater insight into the causation of diseases and the changes produced thereby. We have yet to wait to visualise the effects of harnessing Atomic Energy for constructive purposes and the role it would play both in the domain of the causation of disease and the treatment of certain conditions. Compared to our knowledge at the beginning of this century we have even now advanced far enough. This advance has brought with it increasing responsibilities, which, I am afraid, are disregarded on occasions. It has now become impossible for any single individual to master all the branches of our Science, much less to keep in touch with all the recent additions to our knowledge. This has naturally given rise to specialisation in different branches. To deplore such specialisation is to ignore facts.

If specialised study in different branches had not been undertaken, our recent progress would not have been possible. Specialisation is but a natural phenomenon. What better illustration can we think of, than the differentiation of tissues according to functional requirements during the course of evolution? Multicellular organisms developed from unicellular ones, leading to differentiation of functions. This further led to a grouping of cells with specialised function into separate tissues and organs. All this process went on in accordance with a plan leading to an immense increase

DR. G. V. JOSHI, THE PRESIDENT OF THE CONFERENCE.

in the power of the organism, to react to its environment and survive in the struggle for existence. Specialisation in our profession however, does not seem to be progressing according to a plan with the object of better service to ailing humanity. Some specialists seem to glorify themselves in their own limited sphere and develop an attitude, as though they belong to a superior stratum of the profession. It is high time that these specialists realised that they form part of a team and as such should be prepared to mix with the general profession. It would be beneficial to them, if they come out of their closed shell and broaden their vision by mixing with other members of the profession including specialists from other branches. Could there be any better way of doing this than joining a common organisation like this

Association, and taking an active part in its proceedings ? I am afraid these remarks may become unpalatable to some, but I am voicing them with the sincere hope that they will be taken in the spirit in which they are being offered.

The General Practitioner and his position today.

It is the general practitioner who forms the major bulk of the profession. "Lip service is paid to him as the back-bone of medicine, and it is right that he should be so." I am however, sorry to be forced to recognise certain changes in our professional attitude, which to my knowledge have been detrimental to the nobility and dignity of our profession and also to our efficiency.

It is unfortunate that a medical man is fast losing the coveted position of a friend, guide and philosopher in society. To whatever forces this deterioration of our position be attributed, we cannot ignore the fact that primarily we are responsibe for this state of affairs. We have somehow lost that attitude of fellowship and fellow-feeling towards our patients, we think of patients as cases, presenting themselves with either an interesting or a common-place set of symptoms and in both the cases our concern appears to be just to relieve them to the best of our ability. We hardly ever think of him as a human being with all the faults and weaknesses that a human being is bound to possess. Much less, do we think of him as a complex mechanism of physiological functions, controlled by that super-controller, the mind, and least of all, do we recognise him as a personality.

I have tried to discover and understand the reason for the development of such an attitude amongst us, but have utterly failed in my attempts. My first impulse had been to blame the present system of medical education. But when I think of the respectable men who impart medical education and their intellectual capacity I am reluctant to harbour such thoughts even for a moment. It is quite likely that the financial and other stresses and strains which a new medical practitioner is usually subject to, drain away his energy and good qualities, and make him concentrate his attention on the difficulties he encounters, to the detriment of his earnestness in the application of any high ideals. I am however sure, that this is not the whole story. If the above qualities had been ingrained in him during his college career of five years or more, he could not so easily forget them. My impression has been that he has lost the ideal of an integrated outlook because of the isolationist tendencies in our teaching curriculum. The so called division between pre-clinical and clinical subjects is, to me, without any sound basis, and it is gratifying to note that at least, in some of our Universities even the pre-clinical subjects are taught, with a clinical bias. Coming to the clinical courses wherein normally there should be a wider outlook, one experiences this departmentalism more acutely than any where else. A Professor of Medicine has hardly any contact with a Professor of Surgery. Similar is the case with the Professors of other subjects including the other specialities. A student is apt to forget his Medicine while working in a surgical ward and vice-versa. The same holds true about the other subjects. I do appreciate that such departmental teaching is a necessity of the day. What then is the way out of this ? I should submit that if teachers in these subjects could come together on frequent occasions and give joint clinical demonstrations, it would go a long way in giving the student an overall picture and infusing in him that desirable habit of looking at a patient as a whole and not as localised disease in a particular system of the human body. May I suggest that it is up to the Universities to think on these lines and to put such a scheme into practice. I am sure it would not be difficult either for the Professors in a Medical College or the Academic Councils of the Universities, to lay down a system of medical education, the aim of which should be to turn out a good general practioner with all the necessary qualities in him.

Another reason for our losing the power of integrated thinking is the ready made remedies offered by manufacturers which are expected to be useful in multifarious conditions. One is often tempted to prescribe an omnibus line of treatment and forget about the patient till he presents himself next time either as better or worse. We then, very likely change over to some other set of remedies, if the patient is not satisfied with the result of the first one. I admit the superiority of modern therapeutic preparations, but my objection to them is that these have led us to neglect all original thinking. Our clinical sense is rapidly being subordinated to a method of therapeutic trials. The fault lies obviously not with the manufacturers, but with us who probably are in a hurry to rush through our clinical examinations without any real attempt to develop our clinical acumen. I am sure such a process would undoubtedly relegate us to the position of mere selling agents for these proprietary preparations, and nothing better.

The so called systems of Medicine.

Another factor which is rather peculiar to our country is the existence of the so called different systems of medicine. I, for one, cannot understand how there could be any systems of Medical Science. When one looks at them in a practical way what one finds is that they are systems of different methods of treatment. The aim of all these so called systems of medicine is to cure human ailments by whatever means, best suited and best known, to the practitioner concerned. The ailing human being is a reality by himself, irrespective of the fact as to how this reality is approached. I have no grudge against the practitioners of the so called indigenous systems of medicine. I would not be ashamed of using an Ayurvedic preparation if I am conversant with its actions and am convinced that particular preparation is suitable for the condition of an individual patient, the important factor being my knowledge of its actions, beneficial as well as harmful. As a man of science my behaviour should be considered irresponsible if I handle drugs about which I have not had sufficient information. As opposed to this, a person who has had no scientific training is tempted to take risks which are beyond his knowledge and capacity; and it is to this aspect of the practice of the indigenous systems that I object. It is a known fact that most of these practitioners use modern drugs, including injectables, in any way they like and although it may be doing good in a few cases it is definitely harmful in a number of them. If it is admitted that the practitioners of these systems have to make use of the modern preparations on a large scale, then the correct approach to the problem would be to train them just in the same way as we are. This would only be possible if the present Ayurvedic colleges are converted into institutions teaching modern medicine. I would be very happy if such a step is taken, because the controversy between the so called systems of medicine would then die a natural death. Obviously this is not possible for the present Government of our State. The inevitable result of the present day Ayurvedic colleges is to turn out men and women who claim to have studied Ayurveda under their teachers, but actually practise modern medicine as best as they can, from the day they get into private practice.

The brighter side of our Profession.

I fear that what I have said may strike many of you as depressing and out-of-date. But let me assure you that it was only the darker side of the picture. I have placed it before you in spite of realising that I would be blamed for censuring my own profession ' in the presence ' of a mixed gathering. I am not ashamed of it, because these are facts, at least in part, and there is no sense of shame in admitting one's own faults. All the same let me assure all of you that this is not the whole picture. I am proud of the fact that we have tried to maintain our dignity and traditions

in spite of difficulties seen and unseen. We have gone through a period of difficulties, financial as well as professional, which no other profession would have been able to face. We have withstood competition from sources desirable as well as undesirable and have still continued to serve society to the best of our ability. It is regrettable that the public could be so easily led astray by advertisements of medicinal preparations appearing in lay press. I am sure it is within the rights of our popular Governments to stop such publications, I am certain it will not entail them into any financial losses or added responsibilities.

Granting all this, what is of importance is that there should be a change of understanding within us and an appreciation of the psychological and material benefits that will be the outcome of the establishment of that ideal Patient-Doctor relationship, which is the essence of sound medical practice under any social conditions. The mental satisfaction that one derives out of this sort of attachment between the patient and the doctor is something which cannot be valued in terms of currency. On the other hand one has to suffer mental agony on many occasions because of this interest in, and sympathy for the patient. More so, when one realises the limitations of medical science during the course of one's practice. In a way this would also be an impetus to research work in general practice.

Suggestions for Improving the Conditions.

How could we improve the situation ? I am sure you will agree with me when I say that it should begin from the time of the admission to a student to Medical College. If we could get the correct type of student to take up Medicine, much of the task would be easy. I can do no better than quote to you the views of Sir Lionel Whitby, the president of the First World Conference on Medical Education convened by the World Medical Association in 1953. He said, "It is not difficult to draw a brief pen-picture of the ideal medical student; cultured, broadly educated in the humanities, intelligent and intellectual, of transparent integrity, humane and sympathetic, and above all, one who will love his professtion as well as his fellow-men and all their weaknesses, their joys, and their sorrows." This ideal picture of a perfect medical student so vividly portrayed by Sir Lionel is difficult to recognise in the young men aspiring for admission to a Medical College. Our present method of admission to a Medical College is based entirely on the ranking in the Intermediate Science Examination of a University. I am sure academic qualification of this sort is not all that matters. There should be some attempt to find out whether the student has the necessary aptitude, besides this intellectual qualification, for becoming an ideal medical man, on the lines suggested by Sir Lionel. As to how best to judge this aptitude is a matter that has to be dealt with by the Educationist of the day. Having admitted a Medical Student who has all the qualities mentioned above, the next responsibility would be to train him to be a GOOD DOCTOR.

University Examinations.

The only method in existence today in our country, of testing the knowledge of a person is to make him undergo an Examination. It is unfortunate that academic Examinations in medicine are not conducted in the right spirit. The aim on the part of a student happens to be to pass these Examinations, where he is asked a few questions to be answered either in writing or orally, by committing the required answers to memory. On the other hand the attempt on the part of the Examiners seems to be to find out from the Text books. I would appeal to the Examiners how much a student has been able to commit to memory concerned to find out, if possible, from a student as to how far he has understood the basic principles of the subject in which he is being examiped, in other words to find out if he is "well-grounded" in the elements and the basic principles of the subject. It would be worthwhile to assess his work as a "clinical-clerk" or a "surgical-dresser" to arrive at this conclusion. I realise that all this is abstract talk. But it is essential that the persons concerned with Medical Education should be able to find out some means of evaluating the abilities of a student in this direction.

Ancillary Aids.

While on this subject I am inclined to offer my impressions about the teaching of clinical medicine with respect to ancillary aids. Clinical examination seems to have been subordinated to Laboratory methods. A teacher in clinical medicine or surgery appears to depend so much on Laboratory finding that the student gains an impression that clinical diagnosis cannot be complete without being supported by Laboratory data. I admit that Laboratory findings can corroborate a clinical diagnosis and in a few instances, they are a great help in the elucidation of an obscure condition. My objection

DR. S. S. MHALAS, THE CHAIRMAN OF THE RECEPTION COMMITTEE.

is to the fact that the student is led to believe that everything rests on the Laboratory findings. This leads to a lack of faith in his own clinical findings and lessens his confidence in himself. The net result is that when he gets into General Practice specially in a mofussil town, he is at his wit's ends. I would definitely appreciate if he is taught the prior importance of clinical examination and the necessity of forming his own conclusions, before he can take help from the ancillary methods and that too only in case of doubt. I have nothing against the Laboratory men. Instead of being the "back-room boys" as called by some, they are actually the yard stick of clinical medicine. All I mean to say is that their services should be availed of, only when necessary. It is worth while to impress on a student that constant attachment to a particular family would give the medical practitioner concerned, information about the constitutions and susceptibilities of its members, which is of

immense value in early diagnosis than any Laboratory finding. One practical suggestion I would make in this respect is about the method of keeping our Case Records. In the case of families coming to us more or less exclusively, it is worth while to maintain their histories in one place, in the form of a continuous record for years together, than on loose sheets as is commonly done. It would also impress the patient to feel that he and his family form a sort of a unit in the Doctor's mind and that they have all the necessary consideration at his hands.

Attempts to improve the Patient's attitude.

We in the profession should therefore undertake propaganda to convince the patients that such a close relationship is beneficial to both parties. When I say propaganda, I do not mean sermons or leaflets. Our behaviour towards a patient should be such as to make him feel that we sympathise with him in all his difficulties and ailments, and that we practise our profession not only for the sake of the money that is paid to us, but for the love of our science in general and of our patients in particulars. There could be no better way to emphasise this than by evincing a keen interest in the continued well-being of a patient, as well as the members of his family, and receiving him with a smile, and a sympathetic attitude. This will make all the difference to his faith in us. To assure him by our behaviour that he has an equal claim to our consideration, whether he is rich or poor, would bring him closer to us. To prescribe remedies which are within his means, and therefore not unobtainable by him, would make him feel that he is receiving the required treatment. A patient hearing to all that he has to say before we begin questioning him regarding the information we want, would give him a confidence that we have understood his condition fully well.

If a consultation is necessary, the suggestion should first be from us, instead of waiting for the patient to suggest such a course. This would prove to him that we are aware of our limitations and understand our responsibilities. The rapid advance in our science and the consequent establishment of specialities seem to have misguided the patients into a feeling that a general practitioner is not capable of treating even ordinary ailments, and thus a consultation with a specialist has become the necessity of the day in the patients' opinion. Such a tendency can only be arrested by our suggesting a consultation whenever necessary and assuring the patient otherwise, when in our opinion such a step is not warranted. If we are not alive to this aspect, we will be relegated to the position of one who sorts out patients for the specialists.

The Consultant's part.

The consultant can also help in developing this desirable relation between the patient and the doctor. Whenever a consultant's opinion is sought for, the consultant should take the attending medical practioner into confidence and discuss the patient's condition with him and not with the patient directly. The medical practitioner should necessarily form the link between a specialist and the patient. It should be the duty of the consultant to enhance the patient's faith in his own medical attendant. In this respect, may I suggest that we copy the example of the Legal Profession in the form of Barristers at Law who insist that the Solicitors form the link between their clients and themselves. It should be a rule that no consultant should see a patient unless accompanied by his medical attendant or at least carrying a note from him. The istructions should be addressed to the physician concerned and if necessary posted to him. Whenever a patient has to be admitted to a Hospital, either private or public, the private practioner concerned should have all the facilities for keeping in touch with the patient's condition. The Hospital authorities should try to impress upon the patient the important position that the private practitioner enjoys with respect to his treatment. The private practitioner on his part should make every effort to continue his interest in the patient and not remain content just with a blissful thought that he is being efficiently attended to; after all he is responsible for the patient being sent to the Hospital and it is his responsibility to see him out of it safely.

Modern advances in our Science.

To be able to discharge our duties efficiently it is incumbent on us to be in touch with relevant advances in our science. Different countries appear to have suggested different means of doing so. One of the commonest suggestions put forth is that the Teaching Institutions should conduct refresher courses for general practitioners which should be attended by them at least once in three to five years. Unfortunately it does not seem to be suitable to the conditions of practice existing in our country at present. We will have to establish some sort of a method of practice by groups, before it would be possible for one of the group to attend these refresher courses without any interruption or disturbances in the continuous attendance to his patients. I would strongly recommend to you to think about the advisibility of more than one practitioner combining together and having a joint establishment.

Under the existing circumstances it would only be possible to achieve this object if we are conversant with the current medical journals. It may not be possible for a good few of us to pay for such journals individually. Considering all these difficulties I would suggest that the best means of keeping in touch with recent advances is by establishing local branches of this Association wherever possible and enlisting practitioners as direct members when necessary. Clinical Meetings and discussions should be a regular feature in the working of each branch. This would lead to better understanding between the practitioners of the place and may naturally lead to better enforcement of Medical Ethics. Assuming that some of the branches may not be active in this respect we cannot ignore the fact that each member will be receiving the Journal of the Indian Medical Association every fortnight, which would keep him alive to the developments of the day. I am glad to note that our Journal has introduced recently a feature under the title "Refresher Course for Practitioners".

Preventive Medicine.

Another aspect of our professional work is what is so aptly termed maintenance of "Positive Health" I refer to Precentive Medicine. Our efforts in this direction are dependent to a certain extent on the co-operation we are likely to get from the Medical Officers of Health and the Local Self Government Bodies. It is regrettable to note that there has been hardly any attempt to establish a liason between the parties concerned. Co-operation from the profession is sought only at the time of epidemics, when mass scale inoculations become a necessity. I am proud that my profession has always volunteered readily for performing this duty. It is unfortunate that the relationship so established seems to end immediately after the emergency is over and very often without a word of thanks. I know full well that on some rare occasion a private medical practioner may have viewed the interference by the Officer of Health as an intrusion. I would appeal to the authorities concerned to overlook such incidents and strive to establish closer relationship between the profession and the authorities which is so essential. A system like this which creates a concord between the Consultant, the Medical Officer of Health and the General Practitioner would, I am sure, go a long way in improving the Health of the Nation.

One of the steps in this direction that could be taken by the Government as well as the Local Self Governing Bodies is to consult the profession on all necessary occasions. What better agency could there be to do this than an organization like ours at its different levels. We somehow do not seem to have impressed the powers

that be, with our usefulness in their Public Health Schemes. The fault is not only ours. We have repeatedly attempted to keep our views before the Government as well as the other administrative bodies, but have been looked upon with a suspicious eye. I am sure that if we continue our efforts, some day or the other our voice will be heard and there will be a congenial atmosphere created, devoid of suspicion. We must be patient enough for this outcome.

Socialised Medicine.

As I have mentioned before our responsibility does not end with keeping ourselves in touch with the required scientific knowledge but we have to utilize it for the benefit of society. It is well known that the present popular Government of this country is wedded to the cause of establishing a socialistic pattern of society, resulting in a welfare state. It may be a long time before a welfare state could come into existence, as things stand today it is a state of welfare for the chosen few. All the same we should not be blind to coming events and have got to be prepared for changes which would involve realignment of our relationship with society. We must visualise the possibility of socialised medicine being established in this country in the near future. Some of us in this country as well as in others have thought it to be a menace. Whatever our individual opinions be we must be prepared to face such an eventuality. We must be ready with definite and considered views beforehand. Socialised medicine in fact means virtual conscription of the profession in the employment of the Government or some similar bodies. I call it virtual because, although it may not be compulsory for us to join such a scheme by Law, its method of application would make it compulsary for most of us to join if we are to make a living.

The present schemes include only the industrial labour, but it will not take long for the family of a labourer to be included in the schemes. The biggest group of our society which is commonly termed as the "middle class" is left untouched by these schemes. It would be worthwhile for this Association to give a serious consideration to this aspect and think of some scheme of voluntary Health Insurance for this class. I am doubtful whether the Government with its present finances would be willing to lend a helping hand in such schemes.

The Employees State Insurance Scheme as launched in Bombay is an eye-opener to us. This scheme was launched in an atmosphere of suspicion and prejudice between the Employees State Insurance Corporation on the one hand and the Medical profession represented by the Indian Medical Association on the other hand. This is why during the first year of its working which is just over, so much of misunderstanding had arisen. I am however happy to read in the last Annual Report that the "Teething Troubles" of this Scheme are over and it is expected that the scheme would function smoothly hereafter.

Such schemes have been introduced on a Nation Wide scale in the United Kingdom and Sweden. It is worthwhile studying them. One factor which is obvious is that even these Democratic Governments had launched these schemes without the fullest collaboration of the private medical profession and thereby these schemes suffered in the beginning. I would therefore request our Governmemnt to take the general profession into confidence and discuss such schemes fullly with the representatives of the profession preferably through the agency of the Indian Medical Association before such a scheme is launched in any particular place. I am fully alive to the fact that the Chief Minister of our State does not need any Expert opinion. With all humility let me say that we do not want to be consulted as experts but only as people who have to work out such schemes.

Whatever be the details, if I am allowed to express my personal opinion in respect of socialised medicine I would insist on the following conditions being fulfilled before the profession could join such a scheme : (1) Freedom of the choice of physician for the patient. (2) Liberty to the physician to choose a patient except in cases of urgency. (3) No intervention by a third party between physician and patient. (4) Freedom of the choice of a hospital for the patient. (5) No restriction of medication or mode of treatment to be enforced upon the physician by a third party except in case of abuse of this privilege. (6) Appropriate representation of the medical profession in every official body concerned with such schemes. (7) There shall be no exploitation of the physician by any person or any organisation. (8) The payment of fees should be a nominal annual capitation fee plus fees for services rendered according to an agreed schedule. (9) Any person taking advantage of medical service under the scheme should be made to pay at least a small proportion of the medical fees over and above his nominal capitation fees.

These are the broad principles which I feel should be the basis of socialised medicine to be introduced. It should be upto the Council of this Association to negotiate about the details henever occasion arises. I would however appeal to the Government once more that it is primarily necessary to take the local profession into confidence before it can think of launching a scheme of socialised medicine in any particular place.

The Second Five Year Plan.

The Second Five Year Plan is the talk of the day everywhere, and if we do not voice our opinion in good time the claims in respect of medical relief are likely to be ignored because of default. I would strongly commend to you the proposal put forth by the Indian Medical Association in the supplement to its journal dated the 16th of October 1955. It will be clear from its perusal that maximum importance has to be given to "Preventive Medicine". One other feature of this scheme as put forth by the Association is the whole time appointment of Professors and Teaching staff in the Medical Colleges. With all reverence to the honorary teachers imparting medical education in this state at present, I do feel that a major part of the teaching staff should be fulltime paid. I visualise the beneficial effect of such a procedure in two definite directions, the first being better tuition in clinical subjects leading to the establishment of good relations between the patient and the doctor and the second being valuable research work in all the departments of our science. If we look at the position of the Pharmacentical Industry in this country we have to admit that it is in a sorry state. Manufacturers have to depend on most of the raw products being imported. At best they are mostly bottling and labelling concerns. This is inevitable because of the limited resources at their command and a lack of original research on the part of the medical men of this country. I am sure that with some research centres established at different places in the country many of the indigenous raw products could be investigated and their proper value assessed. This together with the development of Basic Chemical Industry as referred to in this proposal would lead to self-sufficiency in our drug requirement.

Rural Medical Relief.

Rural medical relief has been referred to from all platforms and on many occasions by people in the know of the problem and otherwise. One of the accusations levelled against our profession is that we are not prepared to go to the villages. This accusation has been replied to effectively. Rural Medical Relief does not depend only on a doctor settling down in a village, which unfortunately today is economically not possible for him. To my mind it mainly depends on better communications. If the Government could see its way to establish good approach roads to all the villages, available during all the seasons of the year I for myself do not think that the problem of Rural Medical Relief would lag behind. What prevents us from doing our job is not unwilling-

ness but the physical impossibility of reaching the place. The alternative suggestion of a short term qualified man settling in a village is not acceptable to us as we believe that the life and health be it of a villager or a multi-millionaire is equally precious. We cannot accept two different types of medical men attending on two different categories of persons. A villager is entitled to have as good an attendance as anybody else. I know this is difficult to achieve. Any slipshod method to achieve the aim would be more harmful in the end although it may appear inevitable in the beginning. I am proud to mention that some of our branches have already undertaken Rural Medical Relief either on their own or in co-operation with other institutions. I am sure every local branch would make an effort to render service in this field as early as possible either singly or in collaboration with institutions like the Rotary Clubs, Red Cross Associations or Social Welfare Centres.

Cost of drugs.

One of the arguments put forth against the wide spread practice of our profession is that, treatment by scientific system of medicine is beyond the financial means of a common man. If one thinks dispassionately about this, one would realise that it is the cost of drugs that makes the treatment costly. The increased cost may be the result of various duties and taxes on drugs either imported or manufactured here. The best way of reducing the cost of treatment therefore would be to reduce the cost of drugs. Manufacturers sell drugs at a higher price because of the amount they have to spend on research before a drug could be put on the market. If this cost could be saved to the manufacturers we would be able to get drugs cheaper. To achieve this it is necessary that pharmaceutical researches should be mainly carried out on non-commercial basis. In other words such research should be carried out either by laboratories specially established for the purpose by the Government or by teaching institutions. For this to become possible teaching institutions should consist of some fulltime paid research workers. This has also been referred to in our Association's Proposals regarding the next five year plan."

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The following resolutions were passed at the Conference:

1. Condolence Resolution :—

This Conference expresses its deep sorrow on the sad demise of the following members and extends deep sympathies to their bereaved families.

(1) Dr. G. T. Mahadik, Satara.
(2) Dr. M. S. Wagale, Gadag.
(3) Dr. R. G. Randive, Manmad.
(4) Dr. P. S. Kasture, Manmad.
(5) Dr. Somasundaram, Kurduwadi
(6) Dr. M. S. Beke, Poona.
(7) Dr. M. S. Ajrekar, Poona.
(8) Dr. V. V. Kane, Pandharpur.
(9) Dr. B. R. Diwakar, Hubli.
(10) Dr. K. V. Chipkar, Belgaum.
(11) Dr. M. J. Shah, Nasik.
(12) Dr. V. B. Waikar, Nasik.

2. This Conference regrets to bring to the notice of the Government of Bombay that in enforcing the policy of prohibition they have subjected the medical profession to unnecessary inconvenience by insisting on the various licences for obtaining and dispensing spirituous preparations. It therefore recommends that qualified medical practitioners registered under the Bombay Medical Act, 1912 be exempted from obtaining such licences.

3. This Conference urges upon the University of Poona and the Karnatak University to include the licenciates as registered graduates for the University elections, in view of the fact that the Government has included them in the graduate's constituency for the legislative elections.

4. This Conference while appreciating the efforts of the Government of Bombay in starting a medical college at Hubli, urges upon them the necessity of including the scheme in the second five year plan and in making its fulfilment an obligatory condition in the States Reorganisation Committee's report.

5. This Conference notes with grave concern that certain pharmaceutical concerns are using unethical means of propaganda to advertise their products which are likely to mislead the public and requests the members to bring such matters to the notice of provincial office for necessary action.

VII MADHYA PRADESH PROVINCIAL MEDICAL CONFERENCE, SAUGAR

The 7th Madhya Pradesh Provincial Medical Conference was held at Saugor from 29th October to 31st October, 1955.

Dr. A. V. Baliga of Bombay inaugurated the conference which was attended by more than 100 delegates from practically all the districts of the Province as well as about 500 eminent people of the town. Prominent among them were Hon. Dr. S. S. Kulkarni, Deputy Minister of Health, M. P., Dr. Sant, Dr. Bhivapurker, Dr. Chaudhari, Dr. Seth, Dr. Pandit, Dr. R. P. Tripathi, Vice-Cancellor of the Saugar University, Shri Seth, Shrivastava, D.C. & D.S.P. and other officials.

DR. A. V. BALIGA INAUGURATED THE CONFERENCE.

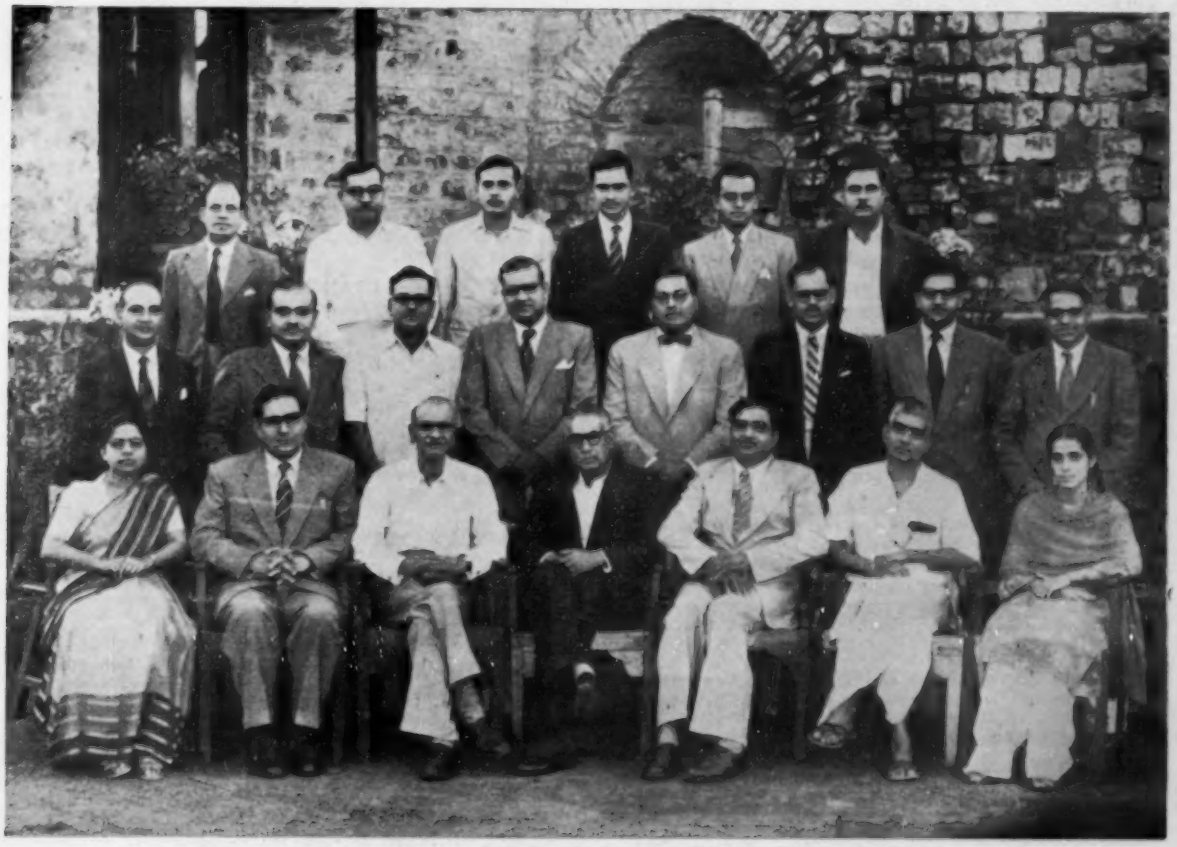
Dr. P. G. Sapre, the Chairman of the Reception Committee, extended his hearty thanks to the delegates and bitterly criticised the State Government's order which banned the government doctors from becoming the members of this medical association, and strongly urged on the State Government to remove this ban, which was a singular instance of this Madhya Pradesh Government as no other State or even the Union Government has ever thought of it. Dr. Sapre also raised his voice against another absurdity of the Government in its orders to the medical practitioners to keep strict and regular accounts of the daily consumption of all tinchers as prescribed for the individual patients for being scrutinised and checked regularly by the prohibition staff and urged on the Government to take into account the dignity and prestige of the noble profession. Referring to the 3 years Medical course which has been introduced in the State against protests from all sides, Dr. Sapre observed that it would only create quacks and halfbaked doctors and

stressed for its early abolition and emphasised on the Government to put a check on all sorts of mal-practices, growing rapidly all over in the villages by unqualified quacks. Referring to the B.C.G. Campaign Dr. Sapre appreciated the move taken by the Government but in consideration of the large number of people, who are actually suffering from T.B. specially in this town of Saugor, as a result of the growing Bidi-Industry, under unhygenic conditions, he laid stress on the urgent necessity for the immediate opening of a well equipped T.B. Hospital for the district of Saugor, for which a good start had also been given by a few philanthrophic citizens.

During the course of his lecture Dr. Baliga referred to the difficulties of the medical practitioners and observed that even those who were teachers in the Medical Colleges were not uptodate and well posted with the latest developments in the Medical Science and thus it was not surprising that the private practitioners could not make further additions to their knowledge after coming out of their Colleges. In the absence of the required facilities in the Medical Colleges and their Hospitals or the Governmental and other Hospitals, the medical practitioners were helpless regarding the acquisition of further knowledge of the medical science and its practice. Dr. Baliga suggested that compulsory Refresher's course be started for 3 months, in every 5 years. Another difficulty according to him was complete lack of research facilities in the Medical Colleges, though there is plenty of youngmen, intelligent and brilliant for undertaking the research. He suggested that statistical study of their observations in the dispensaries and in the homes of the patients will be invaluable. He also said that facilities for research were essential from other considerations also. By issuing the same common medicines for the same common diseases the work of a medical practitioner becomes mechanical, but he can improve if the recent advancements in the medical science were available to him. Dr. Baliga expressed that private practitioners form the bulk and the backbone of the medical profession and such medical conferences will have primarily to consider their interest and their requirements.

In his presidential address Dr. R. N. Chowdhary spoke about the necessity of having a medical association and dwelt on its aims and objects. He opposed the State Government's ban on the Government doctors forbidding association with the Indian Medical Association. Dr. Chowdhary observed that in India there are four systems and the Government is patronising all the different systems. Short injection courses are run for private unqualified persons to meet the emergencies such as Cholera etc. in the villages which are creating quacks and causing exploitation of the villagers. He stressed on the Government to discourage this unhealthy practice.

Referring to surgical facilities, and extending the same to the villages he suggested that the Government should train their own staff for surgical work by giving them opportunities to work under able surgeons and then they be posted in Taluqa places. Similarly he sug-



MEMBERS OF THE RECEPTION COMMITTEE, VII M. P. MEDICAL CONFERENCE.

gested for a greater number of trained midwives and nurses so that there could not be at least one midwife for 10 villages.

The following resolutions were adopted.

I. This Conference reiterates the resolution passed at Akola requesting the State Government to start the system of appointing Honorary Medical Officers to all the Hospitals in the State, including the Medical College Hospital, in various departments on terms and conditions mutually arrived at between the Government and the M. P. State Branch I.M.A.

II. In view of prevalence of Diphtheria-Tetanus and Whooping Cough, this Conference requests the Government to enact a law making immunisation of children compulsory.

III. This Conference requests the Government to start Panel System in implementing the provisions of Employees State Insurance Corporation Act in the State, frame rules and form regional committees in consultation with the State Branch I.M.A.

IV. This Conference while welcoming the mass B.C.G. Vaccine Campaign undertaken by the State Government for the prevention of the deadly disease T.B., is of the opinion that this mass B.C.G. Campaign alone is not sufficient to control or eradicate the disease. T.B. Hospitals too, in addition, are needed for T.B. patients.

This Conference, therefore, urges on the Provincial Government to open such T. B. Hospitals in suitable places in the Province in the 2nd five year plan. One such T. B. Hospital should at once be opened at Saugor, where the percentage of Tuberculosis is very high, as shown by the B.C.G. campaign and where a sum of Rs. 1,00,000/- has already been collected from the donations of Messrs. Bhagwandass Shobhalal and Saugor Municipal Committee.

V. In view of the fact that the Provincial Government has recently provincialised many District Hospitals, but not have equipped them at all, this Conference, therefore, impresses on the Government the urgent need of fully equipping such Hospitals with adequate staff and with all modern appliances for diagnosis and treatment purposes.

VI. This Conference while reiterating its previous resolution regarding the ban issued by the State Government to its services on becoming members of the Indian Medical Association, urges upon the members of the profession in general and members of I.M.A. in particular by constant and active service to the people, create public opinion in favour of the I.M.A.

BRANCH NOTES

BANGALORE BRANCH—On 10-9-55 Dr. V. N. Krishnamurthy, M.D., gave a lecture on "Paper Electrophoresis". Dr. M. Sirsi presided. A film entitled "Reduction of Surgical Haemorrhage" was shown.

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On 17-9-55 the Annual General Body meeting of the Association was held, and office bearers for the year 1955-56 were elected.

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On 23-9-55 Dr. M. Sivaram spoke on "Some Emergencies in General Practice". Dr. M. V. Govindaswamy presided.

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On 4-10-55 a meeting of the Managing Committee was held under the presidentship of Dr. P. Krishna Rao, president of the branch. Discussion on the B.C.G. vaccination and on the Questionnaire of the Pay Structure Committee were held.

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On 22-10-55 Dr. D. P. Puri delivered a lecture on "Modern Trends in the Treatment of Diabetes". Dr. C. V. Natarajan presided.

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On 25-10-55 a Meeting of the Managing Committee was held under the chairmanship of the president of the association, Dr. P. Krishna Rao. The resolutions received for the State Conference were discussed.

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On 4-11-55 the members of the Association were 'At Home' to Dr. Hingorani and Party. The Party introduced themselves to the members and all spoke a few words.

HOWRAH BRANCH—The annual report of the branch for 1954-55 shows that 9 executive meetings, 2 sub-committee meetings were held during the year. In addition to this, 2 special general meetings and 2 joint meetings (including Bally, Belur and North Howrah) were also held. In the 8 clinical meetings which were arranged during the year, interesting scientific subjects were dwelt upon. One hundred and thirteen members were on the roll. Office-bearers for the year 1955-56 were elected with Dr. Chatterjee as president, Dr. B. B. Das as general secretary and Dr. B. Moitra, Dr. P. K. Dutta and Dr. D. P. Mukherjee as joint secretaries.

UDAIPUR BRANCH—The annual general meeting of the branch was held on 12-10-55 with Dr. G. C. Singh in the chair. Thirty members were present. Office bearers for the session 1955-56 were elected with Dr. R. N. Sachdeva and Dr. R. N. Pandya as the President and Hony. Secretary respectively.

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A clinical journal meeting of the Branch was held on 1-11-55 with Dr. R. N. Sachdeva in the chair. 23 members were present. Dr. N. U. Gulvady, Dr. G. S. Jhala, Dr. S. N. Gaur and Dr. G. S. Chaplot read extracts from various Medical Journals.

* * * * *

A General Meeting of the Branch was held on 21-11-55 with Dr. R. N. Sachdeva in the chair. 18 members were present. Dr. J. M. Lodha presented a case of amoebic abscess liver bursting into the pleural cavity and forming encysted empyema. Dr. Gyan Prakash demonstrated a case of wrist drop after quinine injection by a quack and a case of Mitral Stenosis with regurgitation and Dr. R. N. Pandya presented a case of Microcephalic Imbecile for spot diagnosis.

VIJAYAWADA BRANCH—The annual general meeting of the branch was held on 9-11-55, along with the annual celebration of Bedwada Branch. Dr. P. Kutumbiah presided. Office bearers were elected with Dr. Ch. Suryanarana Murty as president and Dr. K. S. Sambasiva Rao as secretary. Dr. P. Narayana Rao of Guntur Medical College read a paper on Lung Abscess. Dr. P. Lakhmana Rao, on Therapeutic considerations of Essential Hypertension. Dr. G. K. Dixit of the Pharmacy Council of India read a paper on Antibiotics and Mr. G. Subbaraju of SIRIS on "The role of Pharmacists in the Development of the Nation." Subba Rao memorial oration was delivered by Dr. P. Kutumbiah.

WEST KHANDESH BRANCH—A meeting of the branch was held on 21-8-55 with Dr. V. S. Sathe in the chair. After the usual business was transacted, films on "Clinical Malaria and Diagnostic Procedures in Tuberculosis" were exhibited.

* * * * *

A special meeting was held on 18-9-55. Dr. V. S. Sathe presided. Elections of President, Vice-Presidents of the I.M.A. Central Office for 1955-56 and Vice-Presidents for Maharashtra and Karnatak Provincial Medical Conference were made.

* * * * *

The annual meeting of the branch was held on 2-10-55. Dr. V. S. Sathe presided. Office-bearers for 1955-56 were elected with Dr. L. H. Paithankar as president and Dr. K. G. Tatnaparkhi and Dr. R. B. Chaudhary as joint secretaries.

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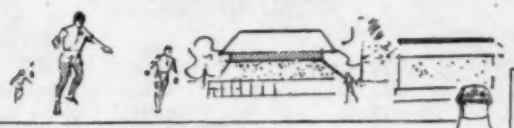

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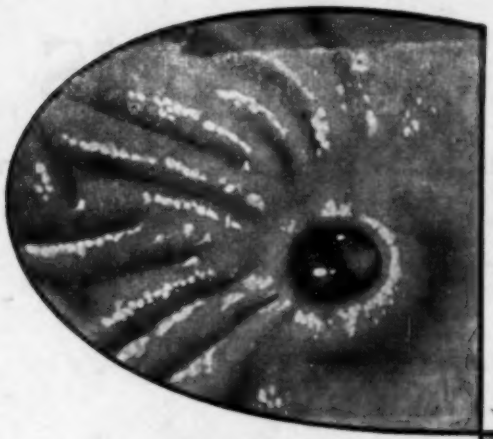

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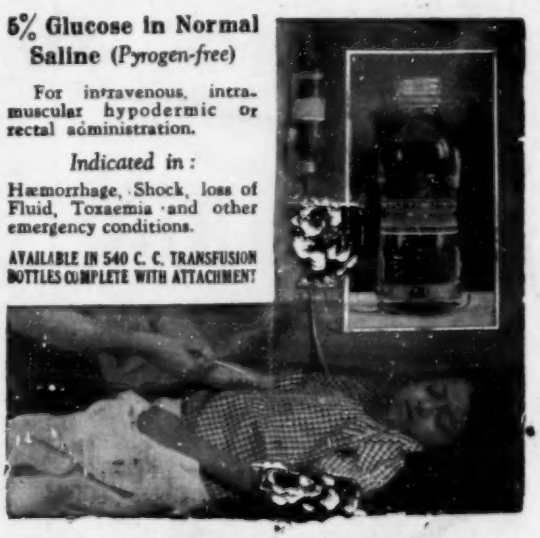

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Editor—DR. P. K. GUHA, M.B., M.R.C.S. (ENG.), D.O.M.S. (LOND.)

Appeal For The
BUILDING FUND
Of the Central Office of the Indian Medical Association
New Delhi

The Indian Medical Association has already completed 27 years of its life; the Association has now about 18,000 members on its rolls; and the activities of the Association have to be expanded in all useful directions. It is, therefore, essential for us, now, to have a Building of our own at the Headquarters of the Association in Delhi. We are glad to announce, that after years of negotiation, the Government of India have allotted us a plot of land measuring about 0.5 acre, for this purpose, at a concession price (premium) of about Rs. 18,000 (plus 5% as ground rent) and the land has already been purchased. The Association Building will have to be completed within a period of 2 years and will have to conform in size and pattern to neighbouring buildings.

From the year 1950-51 appeals have been issued to the members of the Association to contribute generously to this fund. As the total estimated expenditure is likely to be about Rs. 8 lacs, every member has been asked to donate a minimum sum of Rs. 50/- in one or more instalments. Donations received so far from the members have not exceeded Rs. 18,000/-, though some members have donated Rs. 1,001/- each.

In view of the extreme urgency of the situation, may we request each and every one of those members of the Association who have not yet paid any sum as donation to this fund to kindly donate a minimum sum of Rs. 10/- to this fund (Hony. General Secretary, I.M.A. Central Office, Hanging Bridge, Daryaganj, Delhi-7—I.M.A. Building Fund) without any further delay (in any case, before March 1956), so that we may be able to collect Rs. 1,80,000/- to commence the construction of the building? I would also appeal to every Branch Secretary to kindly take active steps in the matter of collection of this first instalment from each and every member of his branch and see that the full amount per head per member in respect of all members of his branch are sent to the Central office, before March, 1956.

A. P. MITTRA,
Hony. General Secretary
INDIAN MEDICAL ASSOCIATION

DELHI,
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